PLEASE ROUTE THIS COPY TO	
Manager	Pressroom Foreman
Production Mgr.	Bindery Foreman
Plant Supt.	Mailing Foreman
Platemaking Foreman	Maintenance Supt.
Composing Foreman	Purchasing Agt.
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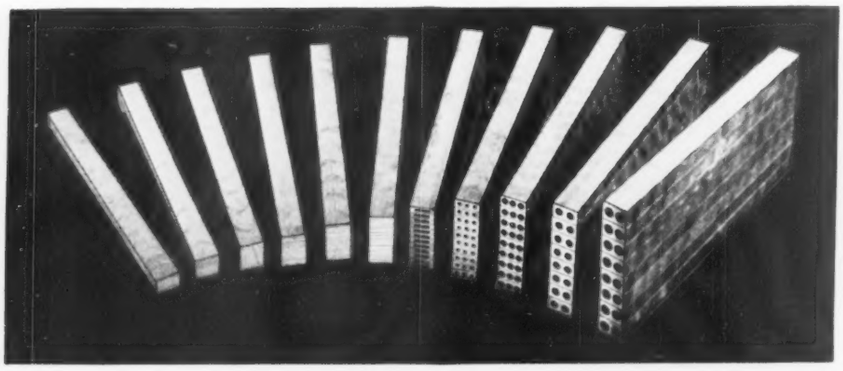
PRINTING EQUIPMENT *Engineer*

AN INDUSTRY-WIDE TECHNICAL PUBLICATION

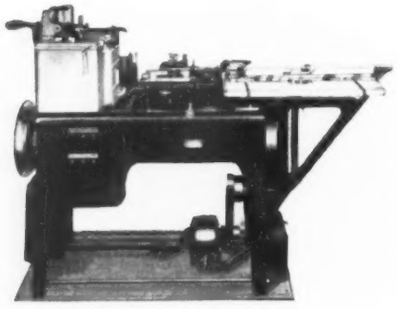
The Elrod

gives wide range of strip material

One Elrod machine produces leads, slugs, border rule and base material for mounting cuts, shell casts and electros, as well as metal furniture for blocking out and for make-up. This wide range of material, from 1-point to 36-points in thickness (see illustration below), is available from a single machine, and explains why many plants make the Elrod the basis of strip material production.



And what a relief for the compositor always to have enough strip material on hand, when and where he needs it! With the Elrod on the job, he knows that there will be plenty of material to see him through, and so his work proceeds with confidence and satisfaction. The pleasant experience of satisfied users may be yours also.



The Elrod is a single-purpose machine for producing strip material. Supplied with either gas-heated or electric-heated crucible, and it is simple in design and mechanism.

Ludlow Typograph Company 2032 Clybourn Avenue, Chicago 14, Illinois

Set in members of the Ludlow Karnak family

Sta-Hi welcomes host of newcomers to large Master Former "family"

●During the past year Sta-Hi has had the happy privilege of installing new STA-HI Master Formers in scores of progressive newspaper publishing plants which had not previously operated this time and money saving equipment.

STA-HI MASTER FORMER

- These "first-time" installations, together with repeat orders from many newspapers who during the year added to their existing batteries of machines, make up a total of more than 850 Master Formers now in daily service.

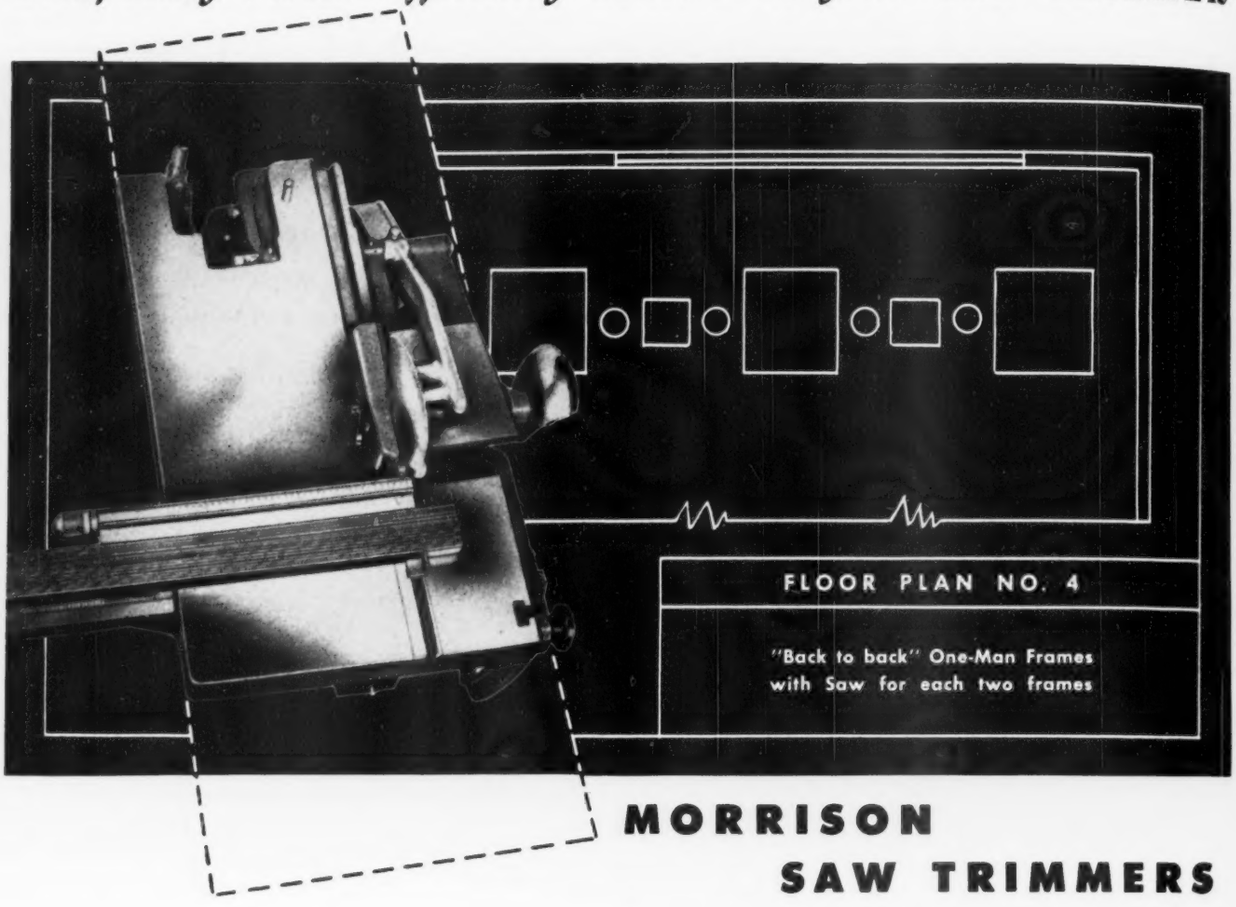
- New installations in 1951 ranged from the Anchorage (Alaska) *Times* to the Baytown (Tex.) *Sun* . . . from the Pomona (Calif.) *Progress-Bulletin* to the Daytona Beach (Fla.) *News-Journal* . . . from the Grand Island (Neb.) *Independent* to the Manchester (Conn.) *Herald* . . . and in such far-flung places as the Honolulu (Hawaii) *Advertiser,* Rio de Janeiro *O Jornal* and the Sao Paulo (Brazil) *Fohlha da Manha.*

- Around the world, around the clock, STA-HI Master-Formers are easing the burden of time-pressed mechanical craftsmen . . . making possible better-printed newspapers . . . cutting production costs.

- Let us tell you more about the Master Former and how it can help you in your plant.

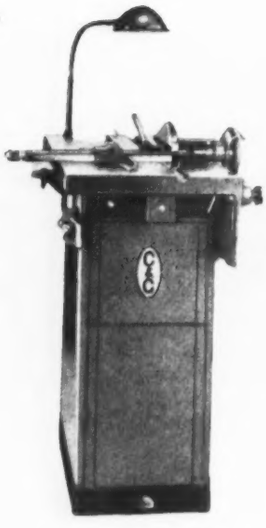
STA-HI CORPORATION 235 West Washington Boulevard, Box 152, Whittier, California

Composing Room Efficiency Centers on your SAW TRIMMER



MORRISON SAW TRIMMERS

Cut Working Space in Half



You need 50% LESS WORKING SPACE with a MORRISON Saw Trimmer! That's because the Morrison work table is stationary. You move the work—instead of the entire table top. This is easier, too, and you don't need extra "overhang" space in front and in back of the saw. Even on wide work, you have the 135 pica Extension Gauge that swings down and out of the way when not in use. Where you want to crowd more production capacity into limited floor space, this space-saving feature is important and valuable. It's just one more advantage that makes the MORRISON your best buy in Saw Trimmers.

These features make the MORRISON your best buy in work-savers:

- "Behind the Gauge" Workholder.
- Miter Gauge with *point* adjustment.
- Right and left hand mitering, all miters face up.
- Miter and lineup gauge.
- Any-Angle Gauge.
- Universal Saw Blade and Saw Grinding Attachment.
- Automatic Index for plate cutting and trimming positions.
- Swing-out 135 pica Extension Gauge.
- Requires 50% less working space.

There's a MORRISON owner in your vicinity. Write for his name. See and try it—prove it yourself. Or write for folder "Essential to Composing Room Economy."

Get **MORE FOR YOUR MONEY** *in Saw Trimmers...* **BUY A MORRISON**

Model 3-A Saw Trimmer

Amazingly versatile. Table, 30" x 18". Smaller Model 45, with 18"x 27" table, has "Pistol Grip" saw blade adjustment. Low cost Model "45 Special" available for small plant or auxiliary use.

Symbol of Operating Economy

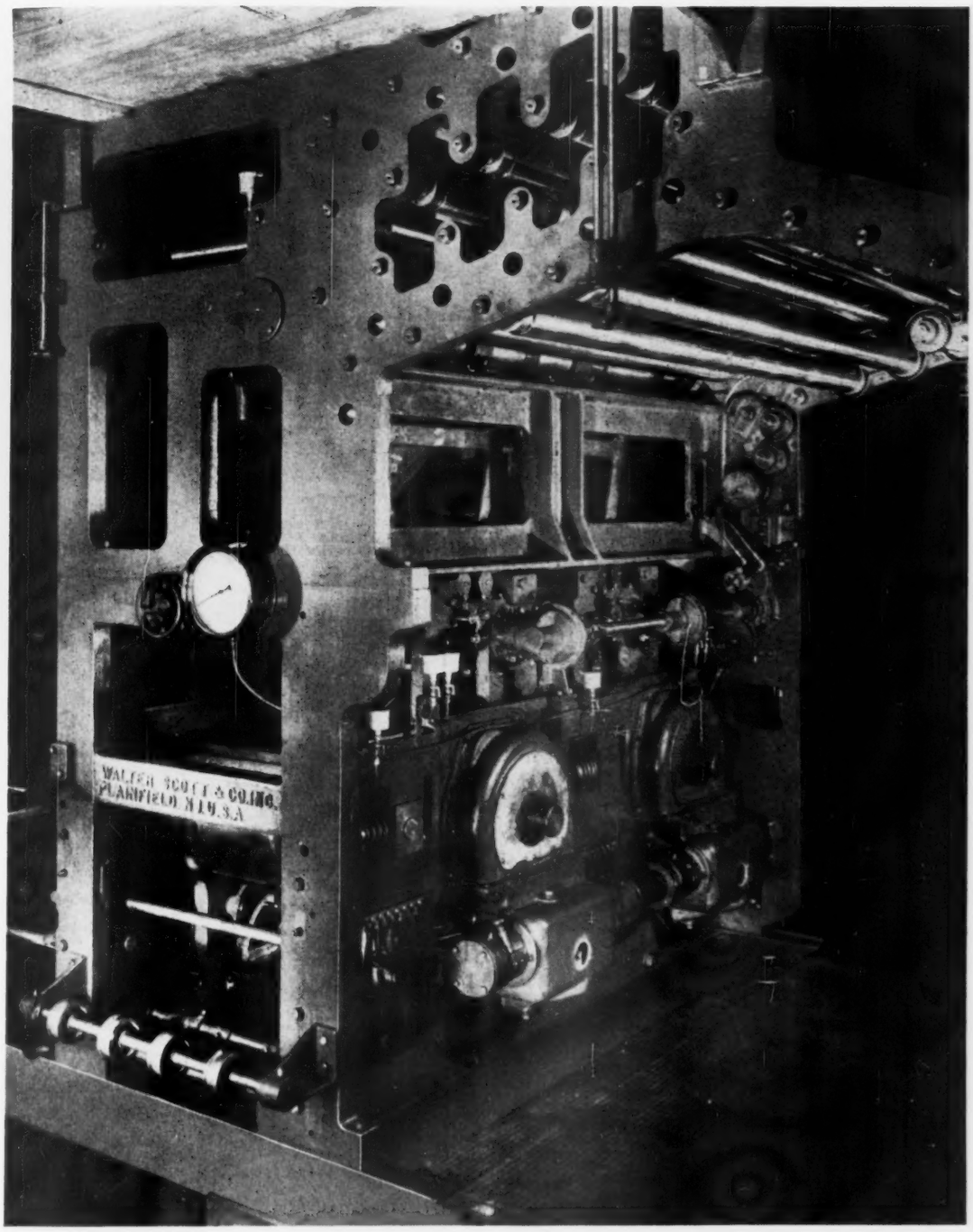
THE MORRISON COMPANY

THE *Morrison* COMPANY

PRECISION MACHINES FOR THE GRAPHIC ARTS INDUSTRY

125 W. Melvina Street, Milwaukee 12, Wisconsin

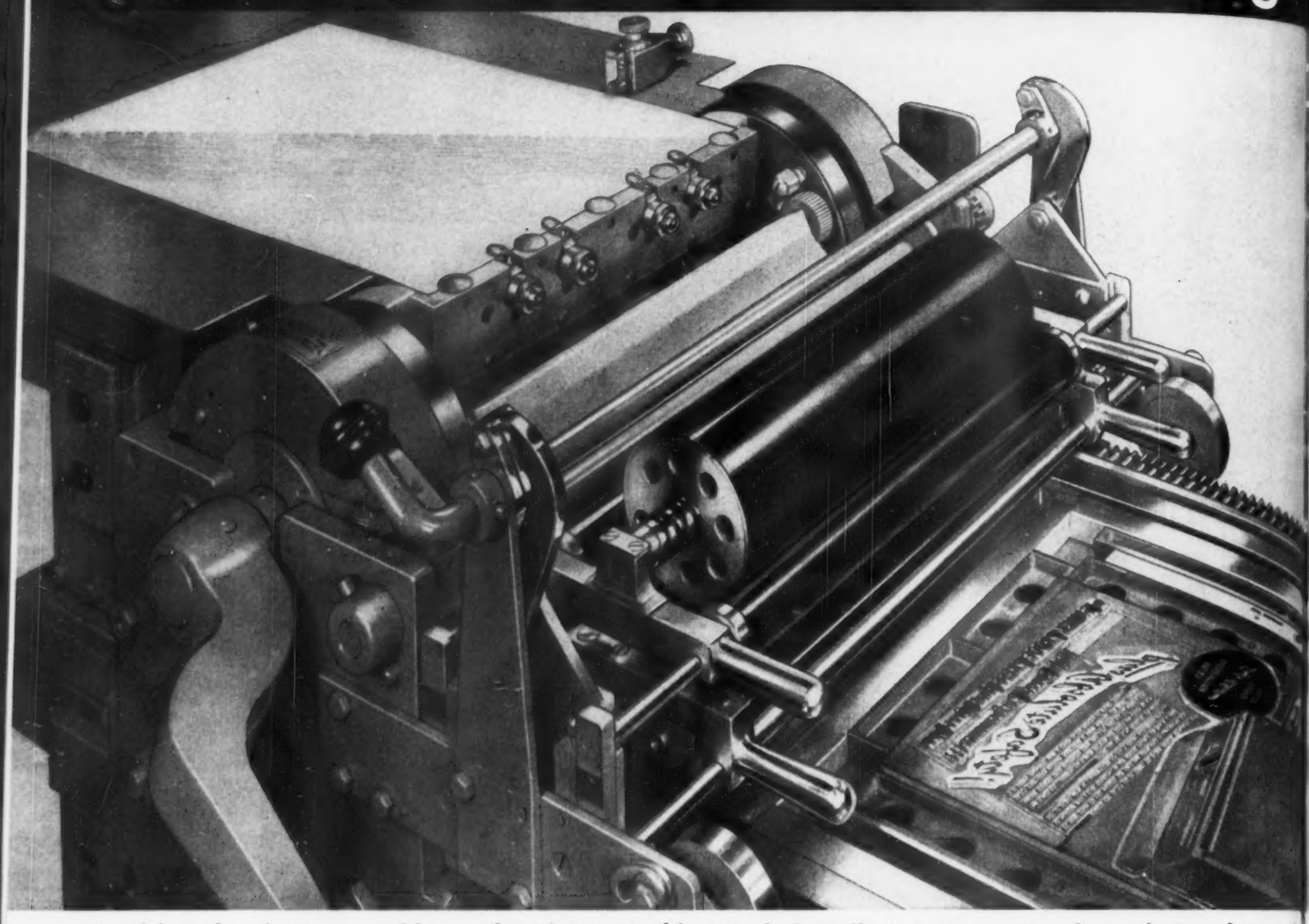
The SCOTT FOLDER



WHEN we announced our Folders would handle 96 page papers—that seemed fantastic to many Publishers. Within the last six months quite a few more papers have found it necessary to go to ninety-six page runs for the first time. We NOW announce that we have a Folder ready to go on edition designed to produce 128 page papers.

WALTER SCOTT & CO., INC., PLAINFIELD, NEW JERSEY

Better Proofs for Better Printing



Precision that is Comparable to the Finest Machine Tools is Built Into Every Vandercook Proof Press

The quickest way for printers to lick the problem of increasing costs and low production is to get their forms in condition to print right before sending them to the pressroom. Thousands of printers throughout the world are doing this every day with Vandercook Precision Proof Presses and successfully producing better printing at lower cost. Here are a few time and money saving operations for which a modern Vandercook Proof Press is available:

- *Checking printability of type . . . before makeup.*
- *Checking printability of plates . . . before makeup.*
- *Checking inks or color match . . . before press time.*
- *Furnishing proofs in color for customer's OK.*
- *Checking with original copy for accuracy.*
- *Checking lineup and register in advance . . . not on the press.*

**Accuracy in Printing is the Key to Bigger Profits*

VANDERCOOK PRE-PRESS ...CUTS COSTS!

VANDERCOOK & SONS, INC.

General Office: 900 N. Kilpatrick Ave., Chicago 51, Ill.

PRINTING EQUIPMENT *Engineer*

AN INDUSTRY-WIDE TECHNICAL PUBLICATION

Published especially for management, production and mechanical executives responsible for printing production and the specification of equipment and supplies used in the commercial, magazine, private plant and daily newspaper fields.

Volume 82 **Number 4**

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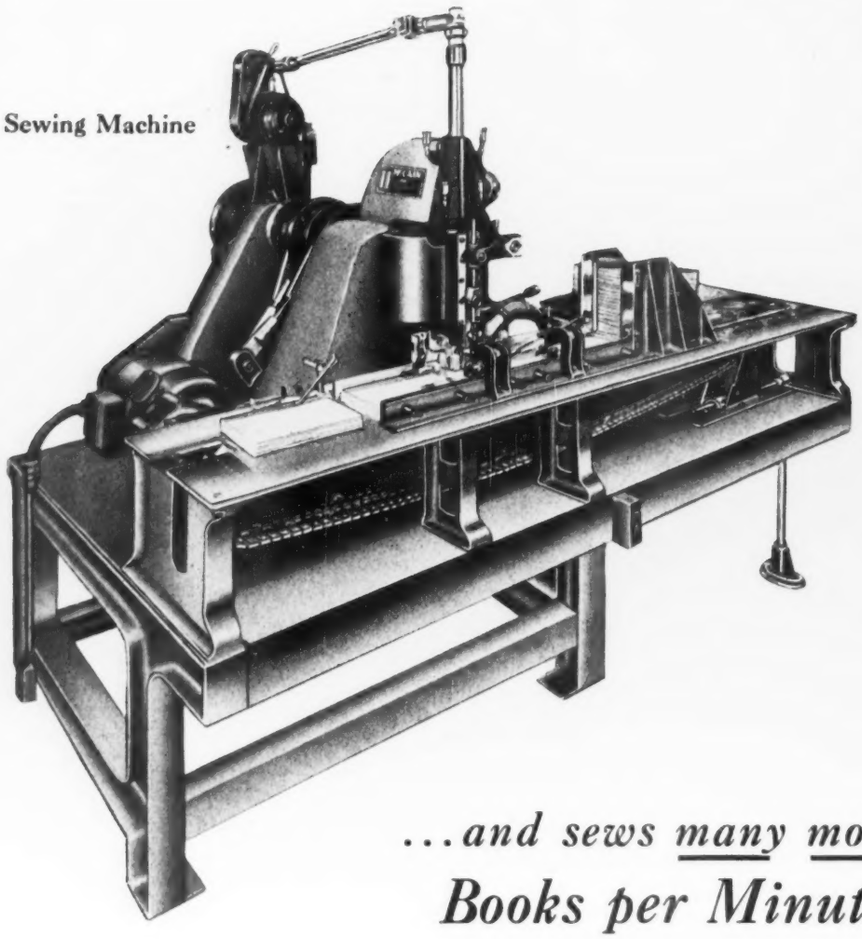
QUADRUPLES the Strength of your Sewed Books

The McCain Side Sewing Machine



...and sews many more Books per Minute!

This machine will not only increase your *production*, but will give you sewed books four to five times stronger than the product of conventional sewing methods.

Operating at its normal speed of 250 one inch stitches per minute, it sews books from 3/16" to 2" in thickness, 5¼ to 15" backbone length; minimum page width 4", maximum 11".

Books over ¾" in thickness are drilled half their thickness from above, half from below. Drill chips are exhausted by vacuum system. Thread is lubricated with liquid soap. Single thread is used, so bobbin doesn't have to be replenished.

Bottom row of stitching is *glued*, giving still further strength. End sheets and reinforcing strips are sewed right in. Separate color and halftone pages are jogged and sewed into the complete unit, with resulting economy. The machine is easily adjusted, cleaned and lubricated.

If you would like to boost your bookbinding production and deliver much stronger sewed books, ask us to tell you more about the McCain Side Sewing Machine.

McCain • Dexter • Christensen

Modern Machines for Printers and Binders

Dexter Folder Company, General Sales Offices, 330 West 42nd Street, New York 18, N. Y.

Branch Offices, Domestic and Foreign Agents

BY DAWN'S EARLY LIGHT

Newspapers never sleep. When the city wakes up . . . the morning papers are on the stands—when it ends the day's work . . . the evening papers are there.

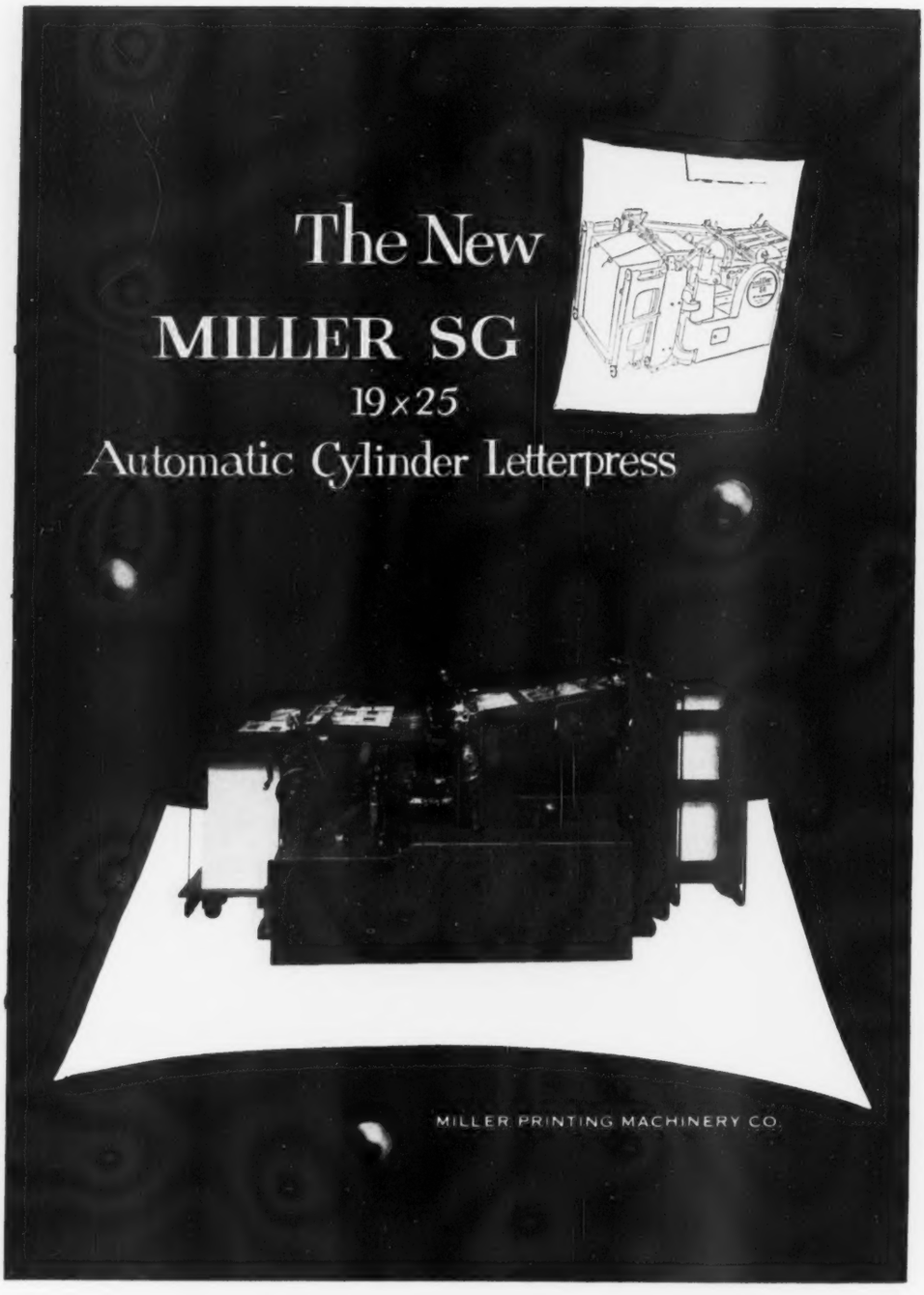
This round-the-clock, across-the-calendar marathon calls for speed and stamina in press equipment . . . and to meet this call, Goss has intensified its research and improved its design to maintain leadership in performance.

As a gratifying result, the list of Goss users reads like the "blue book" of national and international publishers.

In America—where a free press keeps the public informed 24 hours a day—the majority of newspapers are printed on Goss presses.

THE GOSS PRINTING PRESS COMPANY
1535 S. Paulina St., Chicago 8, Illinois
Goss Printing Press Co. Ltd., Preston, England

it's **GOSS** *again*


The New
MILLER SG
19 x 25
Automatic Cylinder Letterpress
MILLER PRINTING MACHINERY CO.

New double-delivery press prints up to 6,000 sheets per hour on TIMKEN® bearings

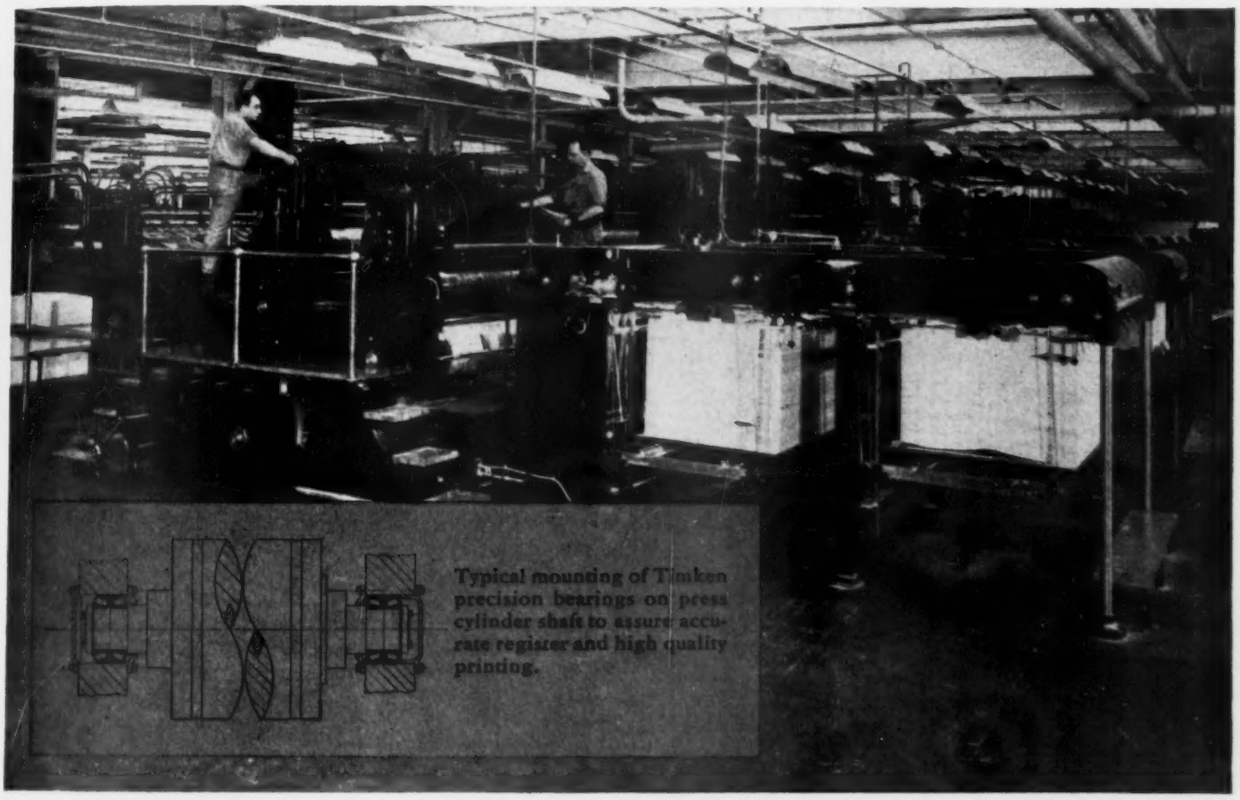
WHEN one pile is filled up, this new Harris-Seybold TRG two-color rotary press delivers printed sheets to another pile! Or it can be set to deliver sheets to two piles alternately. And it prints up to 6,000 sheets per hour! To help insure accurate register and high quality printing, all plate, impression and transfer cylinders are mounted on Timken® tapered roller bearings. Inker spindle, drive pinion shafts and compound shafts are also mounted on Timken bearings.

Due to their tapered construction, Timken bearings take radial and thrust loads in any combination. Cylinders and shafts are permanently aligned, wear on moving parts reduced. Speed restrictions due to bearings are eliminated.

Timken bearings have extra load-carrying capacity, due to line contact between rollers and races. True rolling motion and incredibly smooth surface finish of Timken bearings practically eliminate friction. Lubrication time and maintenance are reduced because Timken bearings make closures more effective. Since Timken bearings are precision manufactured, engineered for the job, and made of Timken fine alloy steel, they normally last the life of the machine.

No other bearings can give you all the advantages you get with Timken bearings. Wherever long-lasting precision is important, be sure to specify Timken bearings. Look for the trademark "Timken". The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

This symbol on a product means its bearings are the best.



Typical mounting of Timken precision bearings on press cylinder shaft to assure accurate register and high quality printing.

FINISHED TO CLOSER TOLERANCES

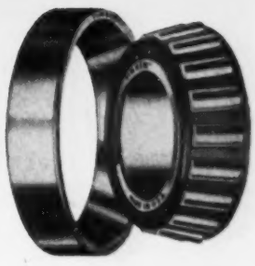
Finishing to incredible smoothness accounts for much of the precise, smooth rolling performance of Timken bearings. This honing operation is typical of the amazingly accurate manufacturing methods of the Timken Company.

The Timken Company is the acknowledged leader in: 1. advanced design; 2. precision manufacturing; 3. rigid quality control; 4. special analysis steels.

TIMKEN

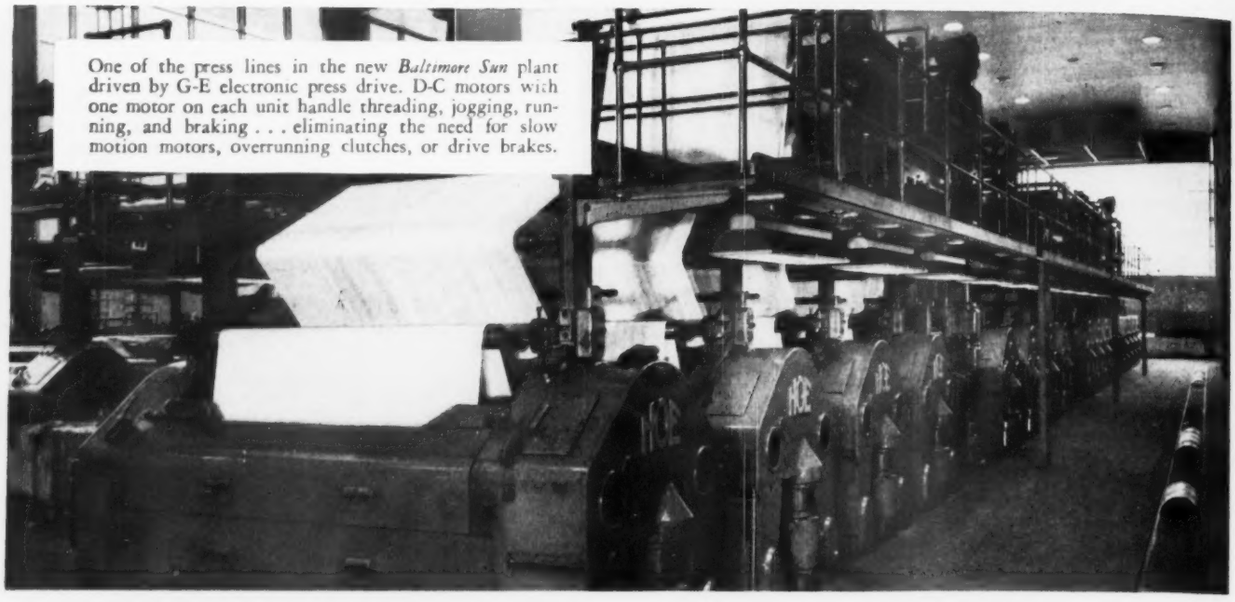
TRADE-MARK REG. U. S. PAT. OFF.

TAPERED ROLLER BEARINGS

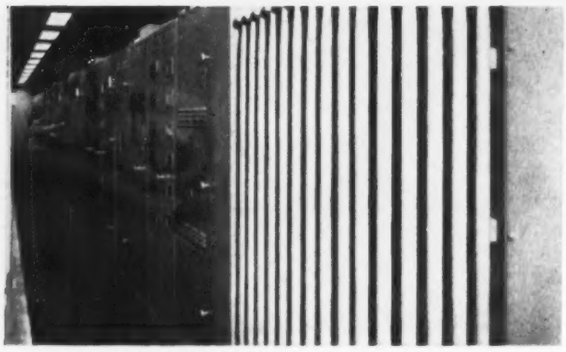


NOT JUST A BALL ○ NOT JUST A ROLLER ▭ THE TIMKEN TAPERED ROLLER ▭ BEARING TAKES RADIAL ⊕ AND THRUST →⊕← LOADS OR ANY COMBINATION ✳

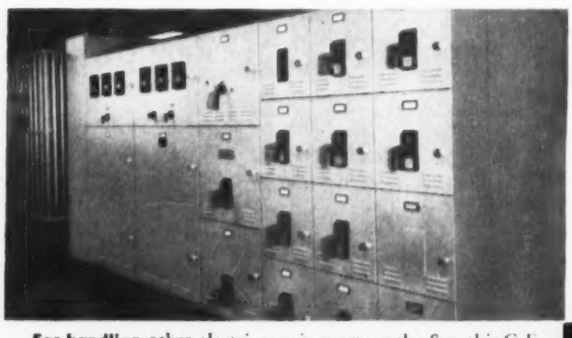
G-E ELECTRONIC PRESS DRIVE SAVES $30,000 INSTALLED



One of the press lines in the new *Baltimore Sun* plant driven by G-E electronic press drive. D-C motors with one motor on each unit handle threading, jogging, running, and braking . . . eliminating the need for slow motion motors, overrunning clutches, or drive brakes.



Incoming power at 13.8 kv is brought directly to this control room near the *Sun* presses. Power is stepped down in compact, metal enclosed G-E load-center unit substations to 460 volts and converted electronically from a-c to d-c to operate the drive.



For handling other electric requirements at the *Sun*, this G-E double-ended load-center unit substation performs the same function of stepping down incoming high voltage power to utilization levels near the areas of heaviest load.

Comparative Study of Installed Costs Shows Electronic System Most Economical

A savings of about $30,000 installed cost by putting in G-E electronic press drive rather than comparable two-motor A-C drives in the new *Sun* plant was indicated by a comparative study made by consulting engineers for the *Baltimore Sun*.

This installed saving, in spite of the somewhat higher first cost of the equipment itself, is due to considerably less power wiring between motors and control, and the elimination of the need for extra ventilating and air conditioning equipment. This is because there are no secondary resistors in the electronic drive to throw off heat.

Modern all the way, the new *Sun* plant is also utilizing the load-center power distribution system with G-E unit substations on the basis of further studies which showed this to be the most effective and lowest cost method of supplying power for plant and printing equipment. Locating unit substations close to centers of load areas also gives less voltage drop and lower power losses for more efficient operation. Hazard to equipment and personnel is also reduced.

INVESTIGATE TODAY this outstanding press drive and power distribution system. Contact your nearest G-E sales representative or write for bulletins GEA-5523, "New G-E Electronic Printing Press Drive," and GEA-3592D, "Load-Center Unit Substations." *Section 653-18, General Electric Co., Schenectady 5, N. Y.*

GENERAL ELECTRIC

3 WAYS BETTER . . .

STRONG GRAFARC

Fully Automatic High Intensity ARC LAMPS

CONTROL that improves quality

INTENSITY that speeds production

EFFICIENCY that saves money

That's why leading shops everywhere install them. Listed are but a few of the hundreds of users.

Models for all photo-mechanical reproduction processes. Adapters to fit most cameras and photo-composing machines.

We'll be glad to send you full details and prices. Simply use coupon.

ALABAMA
Birmingham—Magic City Engraving Co.

ARIZONA
Phoenix—Southwestern Litho Print

ARKANSAS
Camden—Hurley Company
Little Rock—Peerless Engraving Co.

CALIFORNIA
Oakland—Oakland National Engraving Co.
Los Angeles—Western Lithograph Co.
San Bruno—H. S. Crocker Co.
San Francisco—Stecker-Traung Litho Corp.
San Jose—Rosicrucian Press

COLORADO
Colorado Springs—Pikes Peak Litho
Denver—Post Printing & Publishing Co.

CONNECTICUT
Greenwich—Conde Nast Publications
New Haven—Koppel Photo Engraving Co.
Norwich—Chambers-Storck Co.
Springdale—Time, Inc.
Waterbury—Waterbury Rep. & Amer.

DISTRICT OF COLUMBIA, Washington
Army Map Service
Coast & Geodetic Survey, Dept. of Commerce
U. S. Government Printing Office

FLORIDA
Gainesville—University of Florida

GEORGIA
Atlanta—Photo Process Engraving Co.
Columbus—Commercial Printers Inc.

IDAHO
Boise—C. W. Joslyn

ILLINOIS
Chicago—Chicago Tribune
Collins, Miller & Hutchins
R. R. Donnelley & Son
Champaign—G. R. Grubb & Co.
Mount Morris—Kable Bros. Co.
Oak Park—Lacy Bros. Engraving Co.
Rockford—J. L. Clark Mfg. Co.
Springfield—Illinois State Journal & Register

INDIANA
Evansville—Keller-Crescent Co.
Indianapolis—Progressive Offset Co.
Terre Haute—Thompson-Symon Co.

IOWA
Des Moines—Meredith Engineering Co.

KANSAS
Hutchinson—Hutchinson News Herald
Kansas City—Graphic Arts Engraving Co.
Topeka—Myers Company

KENTUCKY
Louisville—Courier Journal

LOUISIANA
Baton Rouge—Esso Standard Oil Co.
New Orleans—H. L. Peace Engraving Co.

MARYLAND
Baltimore—Lord Baltimore Press
Beltsville—Soil Survey, Dept. of Agriculture
Silver Springs—Haynes Litho. Corp.

MASSACHUSETTS
Boston—Buck Printing Co.
Framingham—Dennison Mfg. Co.
Springfield—General Offset Printing Co.

MICHIGAN
Ann Arbor—Edwards Bros.
Dearborn—Ford Motor Co.
Detroit—Federal Litho. Co.

MINNESOTA
Albert Lea—Church Litho. Co., Inc.
Minneapolis—Mono-Lith Co.
St. Paul—Brown & Bigelow

MISSISSIPPI
Jackson—Mississippi Engraving Co.

MISSOURI
Ferguson—Universal Match Co.
Kansas City—Kansas City Star
St. Louis—Color Ad Engraving Co.

MONTANA
Butte—Ashton Engraving Co.

NEBRASKA
Lincoln—University of Nebraska
Omaha—Epsen Litho. Co.

NEW HAMPSHIRE
Dover—Kidder Press Co.

NEW JERSEY
Bridgeton—Price Bros., Inc.
Clifton—Post P. E. Co.
Jersey City—Jersey City Printing Co.
North Bergen—Multitone Engraving Co.
Paterson—Continental Can Co.

NEW YORK
Binghamton—Frank A. West Co.
Brooklyn—Consolidated Litho. Co.
Buffalo—Wm. J. Keller, Inc.
Endicott—International Business Machines
Great Neck—Sperry Gyroscope Co.
Lake Success—United Nations
Long Island City—Dennison & Sons
New York—Conde Nast Engravers
Time, Inc.
Niagara Falls—Moore Business Forms
Pelham—Sanborn Map Co.
Pleasantville—Reader's Digest
Rochester—Stecher-Traung Litho. Co.

NORTH CAROLINA
Charlotte—Charlotte Engraving Co.

NORTH DAKOTA
Fargo—Dakota Photo Engr. Co.

OHIO
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Ashland—A. L. Garber Co.
Athens—McBee Company
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Mansfield—Mansfield Photo Engraving Co.
Middletown—American Rolling Mill Co.
Springfield—Crowell-Collier Publishing Co.
Toledo—Seidel-Farris Co.
Youngstown—Adcraft Engraving Co.

OKLAHOMA
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Tulsa—Southwestern Engraving Co.

PENNSYLVANIA
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Johnstown—Conemaugh Engraving Co.
Philadelphia—Hoover & Sons Lithographers
Pittsburgh—Robert Rawthorne Co.

TENNESSEE
Knoxville—Capper Engraving Co.

TEXAS
Austin—The Steck Co.
Dallas—Wilson Engraving Co.
Fort Worth—Stafford Photo Engraving Co.
Houston—Humble Oil & Refining Co.
San Antonio—Southwestern Engraving Co.

UTAH
Salt Lake City—Wheel Wright Litho. Co.

VIRGINIA
Arlington—Cooper & Trent Co.
Roanoke—Hammond's Printing & Litho. Works

WASHINGTON
Seattle—Craftsman Press
Tacoma—Liberal Engraving Co.
Yakima—Republic Publishing Co.

WISCONSIN
Appleton—Post Publishing Co.
LaCrosse—Northern Engraving & Mfg. Co.
Menasha—Northwestern Engraving Co.
Milwaukee—Gugler Litho. Co.
Sheboygan—Commercial Engraving Co.

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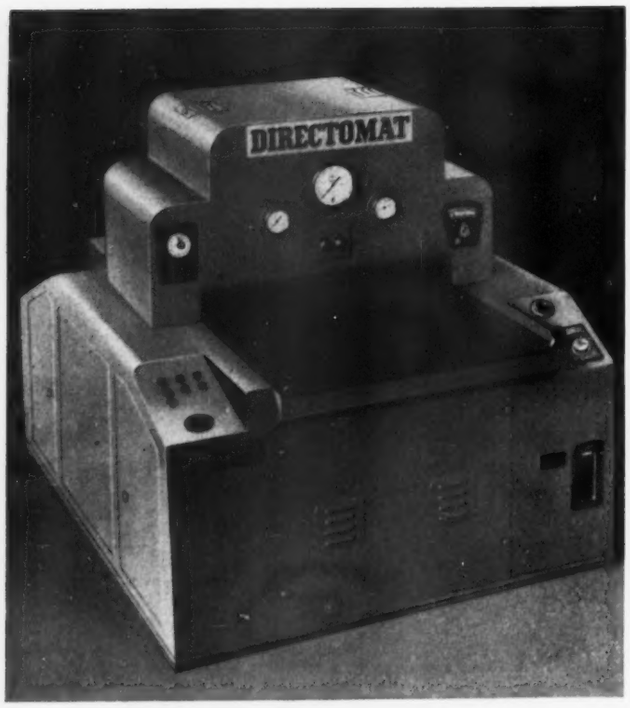
More LAKE ERIE DIRECTOMAT Matrix Molding Presses are in operation today than *all other makes combined!*



HEAVY DUTY DIRECTOMAT model offers extra tonnage and work area. Maximum pressure 1,000 tons. Platen area 34″ x 26″. Also available in 800 ton capacity, platen area 32½″ x 24″. Automatic precision controls. Making better mats becomes an effortless, push button operation. Ask for literature.

Undeniable proof of DIRECTOMAT advantages

Executives in the Graphic Arts are noted for believing only what they can see. We would welcome the opportunity to show you evidence of how DIRECTOMAT direct pressure mat molding can help you get better casts—in less time and with lower molding cost. Most DIRECTOMAT installations have been made as the direct result of their performance in other plants.

Write, wire or phone for a Lake Erie representative. He knows the "mechanics" of matrix molding and can help you do a better job.

LAKE ERIE ®
ENGINEERING CORP.
BUFFALO, N.Y. U.S.A.
DIRECTOMAT ®

LAKE ERIE ENGINEERING CORPORATION

General Offices and Plant: 568 Woodward Avenue, Buffalo 17, New York

● Leading manufacturer of hydraulic presses — 3,500 designs from 5 to 23,000 tons capacity — stereotype molding... plastics molding... laminating... die sinking... metal working... forging... metal extrusion... waste wood and plywood... rubber vulcanizing... special purpose.

In a highly competitive market, WOOD pressroom and stereotype equipment forges steadily ahead and, each year, more and more publishers choose it as a matter of preference.

They choose it because of its *known* mechanical excellence and economy of operation . . . *after* comparing its many exclusive features and other advantages with all other makes.

FREEDOM OF CHOICE

WOOD invites this comparison: Over the years their newspaper machinery has earned an outstanding reputation for dependability, gained under the stress of maintaining heavy production schedules for some of America's foremost newspapers.

From big-city press units to the smallest type of stereotype equipment, WOOD products are without a peer. Feel free to ask for illustrated literature describing this fine machinery.

I'm your Old Uncle Mat

and wherever you're at

I service your linecasting Mats

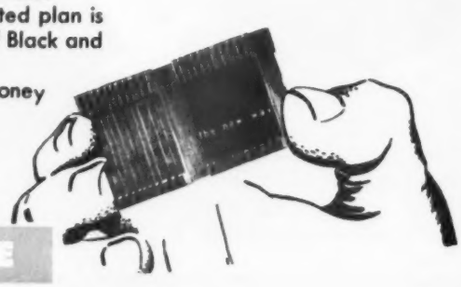
in Nothing Flat!

All you need to be convinced of the wisdom of using Matrix Contrast Service is to give it one trial. With service branches located in

BOSTON NEW YORK CHICAGO LOS ANGELES SAN FRANCISCO ST. LOUIS

and with service crews ready to serve you in 31 other key cities, Matrix Contrast Service can give immediate attention to processing all your present matrices. Our main plant in New York receives several deliveries daily from the manufacturers who are located in Brooklyn, and these new matrices are processed *day or night!*

For over 25 years, Matrix Contrast Service has given its users a product and service which has resulted in an average of ⅓ fewer errors on original composition—and therefore increased production. Matrix Contrast Customers renew their service contracts because they realize that this time-tested plan is the most efficient method for continuous maintenance of Black and White and Colored matrix reference marks.
Let us show you *audited* figures proving the time and money savings offered by Matrix Contrast Service.



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PRINTING
EQUIPMENT
Engineer
January 1952

This is an 85 screen zinc-faced 16 ga. magnesium plate engraved by W. F. Alexander, Photoengraving Supt., the Cleveland *Press*. Average etching depth is 0.004 in. This illustration appeared in the first page of the four-page experimental press run.

Newspaper Section from Fotoset Bi-metallic Plates

Etching time reduced 30% to 50%, mechanical routing eliminated on straight line and open-area work, special photoengraving equipment not required.

MANY executives in the Graphic Arts industry are on ceaseless quests for different ways of doing things to cut high production costs. The difference between these curious persons and the average executive who wishes for something else is that the curious fellow is the one that tries to do something about cutting production costs. In the latter classification is William F. Alexander, Photoengraving Supt. of the Cleveland *Press*.

Several years ago when magnesium photoengraving metal was first introduced to the industry, Alexander experimented with it. The fast etching qualities of magnesium appealed to him. He also thought it would be fine if he could come up with a magnesium engraved line plate etched deep enough in the non-printing areas so that mechanical routing would be eliminated.

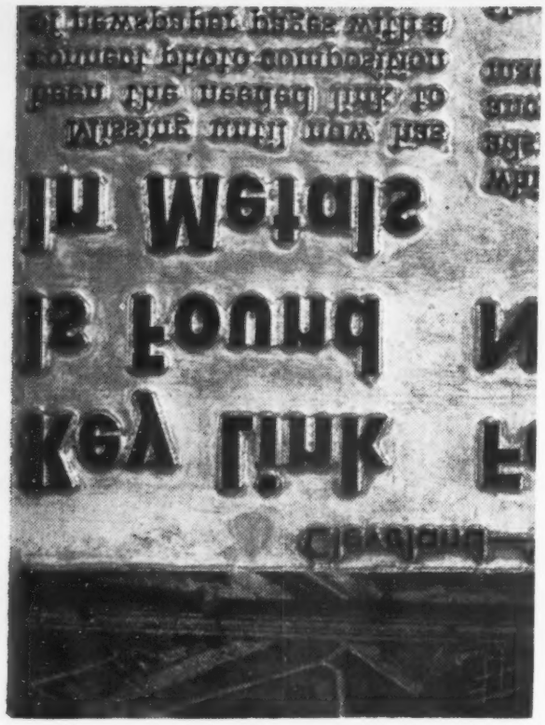
In searching for a coating which could be made to behave properly after it had been applied, he considered the idea of applying a thin layer of zinc to 16 ga. magnesium plate stock. He reasoned that if the zinc coating could be applied to the magnesium, photoengravers would be able to process the plate in a manner similar to that of zinc without special equipment of any kind, using the normal nitric acid bath to which they were accustomed and at the same time do the work in much less time plus the elimination of mechanical routing on line work.

Alexander got in touch with R. T. Hendrich, President, The Wire Coating & Mfg. Co. in Cleveland. Mr. Hendrich has developed a method of applying a 0.0005 in. coating of zinc to magnesium by electrolytic deposition. For some time now, Alexander has been working on a technique to produce the kind of engraved magnesium plates which he and his associates at the *Press* feel would be suitable for newspaper printing with respect to a finer halftone screen, fast etching properties and elimination of mechanical routing. He has had the cooperation of Stereotype Supt. George Fuller and Pressroom Supt. Paul Brannon. The latter two executives have lent their assistance in seeing that the plates have gotten on the press and have been printed from.

In discussing the zinc-magnesium bimetallic plate, Alexander explained that the electrolytic coupling of the two metals produces a harder printing surface. This coupling, without going into metallurgical explanation, enables the engraver to etch the first bite straight down for a distance of approx. 0.004 in. The coupling also permits securing a far greater depth on the first bite without undercutting. Etching around the printing image on the plate enables the engraver to obtain far greater depth than could be obtained on either zinc or magnesium alone. After the first bite, three powder bites are taken to secure the 0.040 in. depth in the non-printing areas in line or open work.

Mr. Alexander explained the bimetalic combination plates are etched to a depth of 0.040 in. for line work. This is considered sufficient depth by the stereotyper to mold properly in the mat without routing. On large advertisements of the style employed by food and drug stores an overall saving in plate production time of 50% is effected. On some smaller engravings, such as halftone and line, and on highlighted halftones, the savings in etching time and routing are not as great, but collectively the overall saving in production time is there. Viewed from an overall standpoint and considering the variety of work coming into a newspaper engraving plant, Alexander states there is a saving of 30% etching time. The saving, however, is dependent upon the character of each piece of copy.

At the Cleveland *Press*, when the bimetalic plates are printed from direct, and where stereotype shrinkage is not involved, an 85 line screen can be used.



Halftone reproduction of a section of the full size experimental newspaper plate (containing both type matter and halftones printed in four-page section at the Cleveland *Press*.) The plate was etched on zinc faced 16 ga. magnesium plate. Enough detail is present in picture to show that no mechanical routing was done in the non-printing areas. Depth of etch in the open spaces is 0.040 in. Plate was etched in 35 min. with regular equipment.

So far, Alexander said, he has not been able to measure the wearing qualities of the bi-metalic plates, but he has observed that on small combination type-engraving-ads the ads have been used repeatedly in regular editions of the *Press* without makeovers. Mr. Fuller, to a limited extent, has molded stereotype mats for other newspapers and reports there is no deterioration in the cuts after 30 to 40 molds have been taken from them with extreme molding pressure. It appears that the repeated pressures used in molding have a compacting, rather than a collapsing effect on plates made from the zinc-faced magnesium. On zinc halftones which are to be used for making duplicate stereotype mats, it is customary for the engraver to make the halftone dots slightly larger than normal so the dots will stand up under molding pressures for a greater number of molding operations. In the case of the bi-metallic plate no allowance need be made for the collapsing of the halftone dots. For this purpose, the engraver makes a normal plate.

Trial Run Produces 4 Page Section

Just recently, Mr. Alexander conceived the idea of having editorial and news matter composed on the Fotosetter with the cooperation of Intertype Corporation. The idea was to print a four page experimental section of the *Press* direct from the zinc faced magnesium plates. All of the type matter, including the headings were set on the Fotosetter for pages 1 and 3. A full page advertisement for The May Co. containing large highlighted halftones with display type matter composed on the Fotosetter filled page 2. Page 4 was filled with a miscellaneous grouping of comics and news halftones in 85 line screen with Fotoset captions. Type stripping operations were executed in the *Press*' photoengraving department with the negative films furnished by Intertype Corporation.

The plates for this four page section were etched in 35 min. each. After trimming on the guillotine, the bi-metal plates were curved in a bending machine and mounted on stereotype dummies or saddles. Double faced Scotch tape was used to cement the plates to the saddles, the sandwich equaling a curved stereotype plate in thickness.

Mr. Alexander stated he is not primarily concerned with a system or equipment for stripping up type matter for newspaper pages but he is interested in proving that photographically composed type matter can be engraved on the bi-metalic plates in clear and concise letter characters that will print with maximum legibility.

Where it is possible to print newspaper pages direct from one or two bi-metallic plates, such as on smaller newspapers, there will be a distinct saving in production time together with improved printing quality, he asserted.

Alexander said that the present price of the zinc-faced magnesium plate is slightly higher than straight zinc alloy plate. At present both metals are on the critical list. In the future, he said, after volume production of magnesium has been attained and also after the metal has been removed from the critical list by the government, there isn't any reason why the price of magnesium plates shouldn't be somewhere in the neighborhood of the price of zinc.

Approx. 50% of the photoengraving work is being done now at the Cleveland *Press* on the bi-metallic metal.

Winkler Honored

J. Homer Winkler, Technical Advisor of Battelle Memorial Institute and President of the International Association of Printing House Craftsmen, has been honored by selection as recipient of the laureate award by Epsilon Pi Tau, International Honor Society in Industrial Arts and Industrial-Vocational Education. The award will be bestowed at a later date.

In commemoration of the event, Epsilon Pi Tau has published a 24 page illustrated brochure containing an essay written by Mr. Winkler under the title *Graphic Arts Research in the United States*. In this discussion, Mr. Winkler reviews research activities accomplished and projected in the Graphic Arts industry. In the final section of the brochure, the author presents his conclusions and implications with respect to the effects of research upon the Graphic Arts industry. He also comments on the existing schools and amplification of schools where specialized training for the printing and publishing industries is or should be available. "To date," comments Mr. Winkler, "photomechanical engineering has not been offered by any of the technical schools. An increasing need for technical men trained in this field is becoming recognized."

The author concludes his essay with the following comment: "Certainly there should be at least one school in this country offering photomechanical engineering. Only through a continuing and adequate supply of technically trained men can the Graphic Arts industries maintain their progress in the educational, research, and production fields."

Mr. Winkler refers to Bulletin RS-2 published by the Research and Engineering Council of the Graphic Arts Industry. The listings of research projects in the Graphic Arts industries is incomplete but 264 specific investigations are described briefly. In this publication, 84 American firms are enumerated as sponsoring research. Among the exceptional research developments discussed briefly are Intertype Fotosetter, Fairchild Scan-a-graver, research and specialty printing, Xerography, and Time, Inc.'s color scanning machine.

An appreciative foreword was prepared by William E. Warner, founder of Epsilon Pi Tau.

Mr. Winkler's numerous friends and acquaintances throughout the industry are pleased that he has been selected for this honor.

Transparent PROOF Production

EDITOR'S NOTE:

THROUGH the courtesy of Executive Secretary Frank M. Sherman, Printing Equipment Engineer *is able to present pertinent excerpts from Research Bulletin No. 10 originally published for the benefit of the members of the International Typographic Composition Association. The subject of Bulletin 10 is* Developments in the Production of Transparent Proofs. *We are certain that executives generally will appreciate the courtesy extended by ITCA membership through Mr. Sherman for its generosity in granting permission to publish the technical information related to the taking of transparent proofs on cellulose acetate with ITCA's special ink, but without any dusting operation whatever. The gathering of information and publication of Bulletins such as Bulletin 10 is a regular feature of ITCA service to its membership. The information contained in this Bulletin was collated by Mr. Sherman as the result of experimental and developmental work in the plants of the Association's member firms together with the work of the Reproduction Proofing Committee of which Alex G. Highton, Newark, N. J., is chairman. Mr. Sherman states work on improving the methods described in Bulletin 10 is continuing.*

IT MUST be understood that the production of clear, sharp and opaque proofs of a type page or form on a sheet of acetate-cellulose or ethyl-cellulose material requires an operating technique and inks entirely different from those employed in proofing type pages and plates on paper. Neither acetate-cellulose nor ethyl-cellulose sheets have any ability whatsoever to absorb ink, and for this reason drying of the ink used is entirely a result of oxidation and evaporation of the chemicals which carry the pigment and solids which create opaque images.

For the above reason the operating methods and materials used in proofing on paper cannot be applied in making transparent proofs.

The goal toward which we are working is a clear and sharp faithful reproduction of type or plates, completely opaque without dusting, and quick drying to permit burnishing without smearing or scratching.

The experiments and experiences of members of the ITCA Proofing Committee has disclosed that combinations of methods and materials which produce satisfactory results in one plant will sometimes not give the same results if used in another plant under what seem to be identical conditions. The skill and the interest of the person doing the proofing is still the most important factor in securing satisfactory results. There must first be present the ability to know when a proof is or is not good, and the interest and desire to seek means and methods of improvement.

There is not yet a royal road to perfect transparent proofs and transparent adhesives—and there may not be such a road, *ever.* However, the equipment, materials and methods of operation hereinafter listed are producing satisfactory proofs on transparent materials, *without dusting,* in plants of members of the ITCA.

In the first place there must be a realization that no proof will be better than the page or form from which it is taken. Type must be clear and sharp, of even height over the entire proofed area. In some cases make-ready will be necessary—if so, build up *from the bottom* by underlays.

Floating particles of dust and lint can nullify your most careful efforts to secure clear, sharp and opaque proofs. Locate your proof press in a separate room if you can do so; or at least as far removed as possible from the major center of activity in your plant. An air-conditioned proofing room would provide the ideal location.

The Proof Press

Since the best results in proofing transparent materials are secured by making an impression on both sides of the sheet—in order to increase the quantity of ink deposited and thus add to opacity—the Vandercook Model 4-T proof press is the preferred equipment. It is the opinion of manufacturers of "CA" inks that rubber or synthetic rollers produce the best results—the U. S. Government Printing Office finds rubber rollers more satisfactory in producing proofs on ethyl-acetate. However, a few plants have used composition rollers with satisfactory results on acetate-cellulose sheets. Atmospheric and temperature conditions exercise an influence on the quality of work—so try the rollers you have before making a change to another kind.

Until recently only cellulose-acetate sheets have been available for purchase for commercial use. However, I have been informed that the cellulose-ethyl sheet Ethocel which is being used by the U. S. Govt. Printing Office in Washington is now available for purchase commercially. For this sheet the GPO formulated a special ink with which it secured very satisfactory results. This ink is listed herein under Inks.

The Transparent Sheet

The sheet bearing the weight symbol No. 88 (0.00088 in. thick) is specified for map work by the U. S. Armed Forces, and is so being generally used. Sheets bearing the symbols No. 150 (0.0015 in. thick), No. 200 (0.002 in. thick) and No. 300 (0.003 in. thick) are preferred for commercial work, *with preference going to the 0.002 in. thick sheet.*

Transparent sheets are available with both rigid and flexible qualities. Only the rigid type is suitable for proofing; the flexible sheet being used mostly for packaging. The rigid sheet is easier to handle, tougher and more compact. *Be sure to order rigid sheets for proofing.*

Transparent sheets can be bought either in rolls or sheets. 9 in. by 12 in. and 8½ in. by 11 in. are the preferred sheet sizes, although some plants order 12 in. by 18 in. and 14 in. by 20 in. sheets and cut them to other desired sizes. Better place a minimum order for sheets until you are sure that the sheet ordered is the one you wish to use regularly.

The standard symbols used by manufacturers for the various weights of transparent sheeting are: No. 88—0.00088 in. thick; No. 100—0.001 in. thick; No. 120—0.0012 in. thick; No. 150—0.0015 in. thick; No. 200—0.002 in. thick; No. 300—0.003 in. thick; No. 500—0.005 in. thick. Sheets over 0.005 in. thick are seldom used for proofing.

Cellulose-Acetate Sheets

Cellulose-acetate sheeting suitable for proofing is made in the United States by three manufacturers; and cellulose-ethyl sheets by one U. S. manufacturer. These sheets by trade name are:

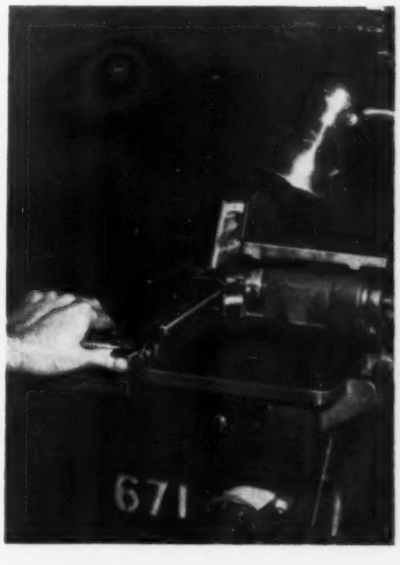
Cellophane—Made by E. I. du Pont de Nemours & Co. of Wilmington, Del. (Place order through the Specialty Film Department.) Available in a variety of

Protect Eyes-Thumbs

By LILLIAN STEMP

EYES and thumbs, which are vulnerable at composing room metal power saws, are protected at Kingsport Press, Kingsport, Tenn. Note the thumb guard shown in the illustration. It was installed to keep the thumb from contacting the saw blade during sawing operations. For eye protection, Kingsport modified the manufacturer's metal guard over the saw. Part of the metal at the fourth part of the guard was cut away and a special slide with safety glass inserted was attached. This arrangement provides better visibility for the operators, enabling them to stand upright when using the saw. The improved posture is less tiring and faces and eyes are protected from ricocheting metal.

The adjustable light in the accompanying illustration at the point of operation improves illumination and results in greater ease in seeing.



weights from 0.00088 in. to 0.002 in. thick; either sheets or rolls. Cellophane possesses those qualities which should make it a satisfactory sheet for transparent proofing, and its trial is recommended. Can be secured on order through local du Pont offices where located.

Kodapak—Made and sold by Eastman Kodak Co. in company stores and on order to the main factory at Rochester, N. Y. Available in four weights from 0.0001 in. thick to 0.002 in. thick; sheets or rolls. This sheet has been used by ITCA members with satisfactory results, and because of its easy availability should be given a trial.

Lumarith—Made by the Celanese Corp. of America, 180 Madison Ave., N. Y., Transparent Film Department. Available on order in either sheets or rolls through Charles H. Hubbs & Co., 383 Lafayette St., New York, N. Y. Available in a variety of weights in the clear finish and in the 0.002 in. weight in matte finish. This is the sheet which the ITCA Repro Proofing Committee has recommended for use by ITCA members in case other sheets have not been found to give satisfactory results.

Transowrap—A cellulose-acetate sheet made by the Transoline Corporation, Barrington, Ill. It is a flexible sheet for use in packaging, and is not suitable for proofing. No rigid sheet is made. Not recommended.

Cellulose-Ethyl Sheets

Ethocel—This is the only cellulose-ethyl sheet available. It is made by The Dow Chemical Co., Midland, Mich. It is used with satisfactory results by the U. S. Government Printing Office in Washington, D. C. It is available in 0.003 in. thick (3 mils.), 0.005 in. thick (5 mils.), 0.007½ in. thick (7½ mils.) and 0.010 in. thick (10 mils.). Sheets thinner than 0.003 in. are not made. Order in sheets or rolls direct to Midland. (The special ink developed by the GPO for use with Ethocel is listed below.

Caution—Do not place a large order of any transparent sheet or of any weight until you are sure that you can satisfactorily serve your customers with it. This material is expensive.

Inks for Transparent Proofing

Practically all the larger ink companies (Sinclair & Valentine, General Printing Ink, IPI, Fuchs & Lange, etc., and many local ink makers) produce inks which may give satisfactory results when used for transparent proofing. IPI Cello Black No. 44-B-926 has proved satisfactory in several ITCA member plants. However, the special ink which has been developed by the ITCA Repro Proofing Committee, available through ITCA Headquarters (in 1 lb. cans) has given the most satisfactory results wherever used. It can be had in black, blue, red, yellow, green and white and deep maroon (for heavy solids) on order. $3 per lb. for black; $3.25 per lb. for the colors and white.

The special ink developed in the GPO for use with Ethocel can be had on order from the Capitol Printing Ink Co., 806 Channing Place, N. E., Washington, D. C. It is called Ethyl-Cellulose Proofing Black No. 12329. If you can secure a supply of Ethocel from Dow Chemical Co. you now know where to get the ink to use with it.

The Solvent For Use as a Type Wash

The Chicago Convention report of Alex. G. Highton, of Newark, N. J., as chairman of the ITCA Reproduction Proofing Committee, stated that a solvent composed of equal parts (by volume) of Trichloro-Ethylene and Ethyl-Acetate was being used by the GPO in Washington as a type wash with satisfactory results. This solvent has been given experimental and commercial use by members of the committee, and the results have been entirely satisfactory. The solvent is highly volatile and dries very quickly, leaving a perfectly clean and dry surface when applied to type forms. Its use is recommended.

Operation

Clean thoroughly the offset blanket of the Vandercook 4-T Proof Press, using benzine, kerosene, Varsol (preferred) or any other cleaner which will thoroughly remove *all* oil and grease.

All type forms must have bearers. Take a preliminary impression of the form and after inspecting the impression do whatever makeready may be necessary to assure a good clean proof of even impression over the entire sheet. Build up low impression by the application of underlays; remove bad characters or type lines, replace bad letters and slug lines, broken or nicked rules, etc.

When the type form is apparently OK for proofing apply solvent lightly to the surface of the type, using a rag as free of lint as can be secured. After half a minute the solvent will be dry and you can blow off whatever lint there may be on the surface of the type. Make two impressions on the blanket before inserting the transparent sheet. Run the transparent sheet *slowly* through twice before peeling it *slowly* from the blanket. Inspect sheet and if OK hang it up to dry—with a clothespin in the center at the top and another in the center at the bottom, for weight to keep the sheet vertical and prevent curling while drying. Most sheets will dry in 20 to 30 min. on a clear day—and seldom will more than half an hour be required for thorough drying. Test for dryness by rubbing the impression on the bearers. Apply light heat if you want sheets to dry quickly—but don't have the cabinet above 135 deg. F.

You can take 15 to 20 proofs of the same type page before applying more of the solvent to clean the type.

The above operation should give a clear, sharp, opaque application of the ink on both sides of the transparent sheet, with non-smear and non-scratch surface.

Application of a Transparent Adhesive to Transparent Proofs

For use in map work and in other work where words or lines of the transparent proof are applied to the surface of paper or some other similar material for photographing or for superimposition of art work, etc., a transparent adhesive substance is put on one side of the transparent proof. These proofs are now known in the trade as transparent adhesive proofs. The preferred equipment for applying the transparent wax adhesive is a Potdevin Glueing Machine and the adhesive most commonly used has a paraffine wax base, which must be melted before being applied.

Potdevin Glueing Machine—Equipped with a motor, electric heating unit and thermostat to control the heat of the wax adhesive. Type ZF, 12½ in., is the preferred model. Sold by George E. Keller, 210 "G" Street, Washington, D. C. In ordering state what your use of the machine will be and ask for printed operating instructions.

The Wax Adhesive—This is a special material for application to transparent sheets when it is desired to make one side of the sheet adhesive and maintain transparency. There are two sources of supply: The Zophar Mills, 116 - 26th St., Brooklyn, N. Y., makers of Zophar Wax 530-WC; and Glyco Products Co., 230 King St., Brooklyn, N. Y. makers of Flexo Wax O, Light. *Ask for it in bars or cakes.*

Parchment Paper—To separate the transparent sheets after the adhesive has been applied. These parchment sheets may be used over and over again.

Experimental Work Still Going On

Members of the ITCA Repro Proofing Committee are still testing materials and methods to improve the quality of transparent proofs and save time in production.

Correction

In the 1952 Reference Number of *Printing Equipment Engineer*, Herbert Products, Inc., 74-32 Jamaica Ave., Woodhaven 21, N. Y., was omitted from two indexes.

In the 2B—Gravure Index, Herbert Products, Inc., 74-32 Jamaica Ave., Woodhaven 21, N. Y., should have appeared under the sub-title *Static Eliminators 2B38* on page 140.

In the 2D—Offset-lithography Index, Herbert Products, 74-32 Jamaica Ave., Woodhaven 21, N. Y., should have appeared under the sub-title *Heaters and Neutralizers 2D51* on page 143.

Please make these corrections in your copy of the 1952 P-Double-E Index Issue of *Printing Equipment Engineer*.

George O. Wherley, General Credit Mgr. of The Timken Roller Bearing Co., has been named President of the Motor & Equipment Manufacturers Assoc. Wherley has served on the executive board of the credit department for eight years and on the board of directors for two.

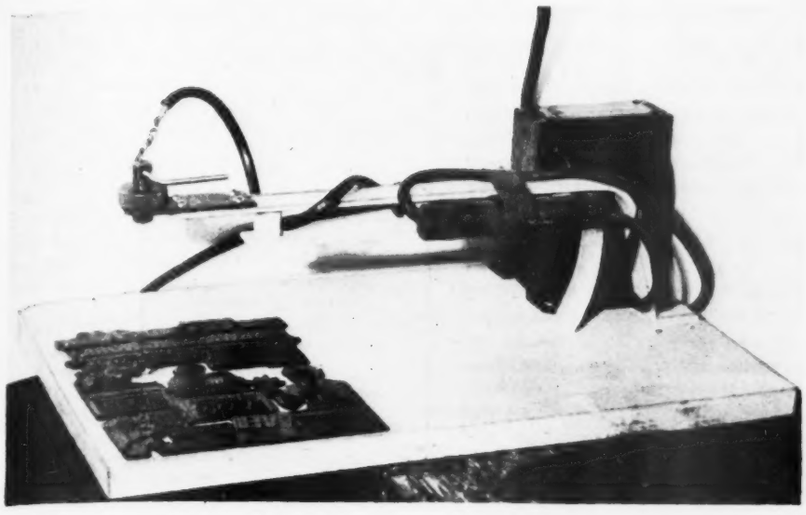


Fig. 1.

Plastic Plate Mortiser-Cutter

By VERN WILLIAMS*

*Mechanical Supt., The Topeka Newspaper Printing Corp., Topeka, Kan.

THE problem of cutting apart, notching and mortising thermoplastic printing plates exists in many printing plants since the plates have come into general use. The material is too hard and brittle to be handled on conventional saws and routers. Different attempts at improvising tools for this purpose have not been too successful.

In presenting a description of the device illustrated in this little article, the writer wants to state that the tool was constructed mostly from materials at hand in the plant. No thought was given to designing a handsome piece of equipment, the main object in making the device being to find some way to modify plastic plates quickly when necessary.

As will be seen in halftone illustration, Fig. 1, and the diagram, Fig. 2, the tool consists principally of a wood base (cut mounting lumber) 10 in. by 17 in. by ¾ in. thick, a jigsaw-like arm, a 110 v. power transformer, two stationary chucks and a 7½ in. length of 0.025 in. Nichrome resistance wire. This wire held tautly in the chucks is the plastic plate cutting element. The transformer used in this device is one we had on hand. It is a Model B2 carbon soldering transformer made by Ideal Commutator Dresser Co., Sycamore, Ill. However, it should be explained that what looks like a horizontal coil in the halftone is not a coil at all, but rather is a cylindrical device containing disconnects so that various kinds of soldering tools can be used. The disconnect device came with the transformer originally.

The 7½ in. length of 0.025 in. Nichrome heating element wire is held in an upper and a lower chuck jigsaw fashion. Leads to the wire are attached from the 110 v. power transformer. The transformer produces about 250 w. and when turned on heats the wire to a dull cherry red instantaneously. The wire connections to the upper and lower chucks were made purposely to increase the resistance and to keep the Nichrome wire becoming too hot. Too hot a wire affects too much of the plastic and does not cut as smoothly as a wire of lower temperature. If the wire becomes too hot it also becomes too soft which causes it to break under pressure from the plastic plate. The cooler wire seems almost indestructible.

No instruction whatever is necessary in using the device. All that is necessary is to turn on the current. The plate is held against the wire with light pressure as it cuts through the plastic. The plate guides easily.

After the separating cut has been finished, the slightly burred edge caused by the melting action of the wire can be removed with a pocket knife or a chisel.

Disconnection of chuck handle *A* in Fig. 2 permits quick removal of the upper end of the wire so it can be passed through a hole drilled in the plate to permit cutting mortises.

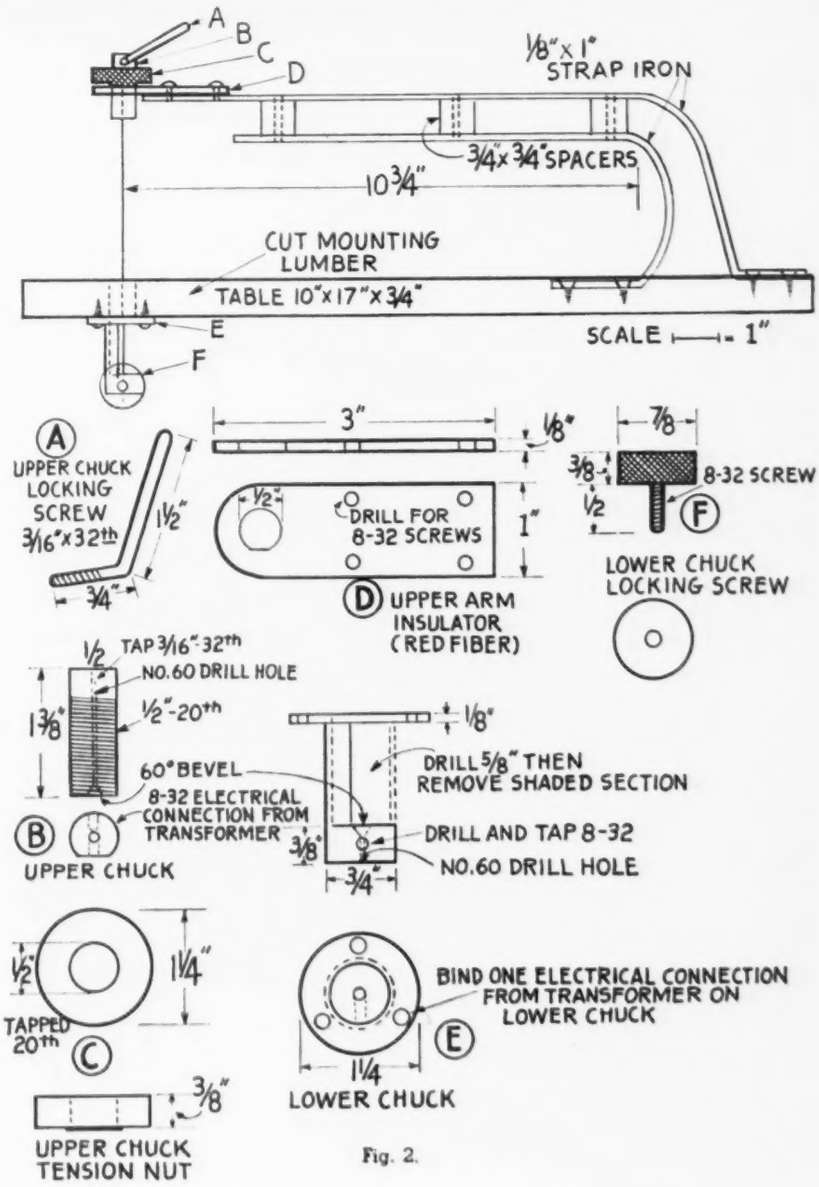


Fig. 2.

Craftsmen Safety Program

TO BOLSTER a plant safety program in the printing industry the Intl. Assoc. of Printing House Craftsmen has appointed a Safety Committee headed by W. A. (Andy) Anderson, U. S. Government Printing Office, Washington, D. C. According to available statistics, the printing industry ranks eleventh in the number of accidents per million-man-hours worked as compared with other industries.

The following is an outline of the objectives and functions of the Safety Committee and the manner in which it is hoped to make printing the safest of all industries: (1) To promote accident prevention in the printing industry (2.) To render service to members of the Association by answering inquiries and furnishing information relative to safety as it pertains to the industry; (3.) To disseminate safety information through the Share Your Knowledge Review; (4.) To collaborate with the Printing and Publishing Section of the National Safety Council in developing safety materials pertaining specifically to the printing industry; (5.) To encourage and promote local clubs to devote one meeting a year to the subject of safety; (6.) To encourage and promote safety as a subject at District Conferences; (7.) To assist local clubs and chairmen of District Conferences in obtaining speakers to present talks on safety for safety meetings; (8.) To cooperate with the President of the United States and the governors of the various states in their safety programs.

Technique

Used in cleaning, coating, printing down, etching and finishing magnesium photoengraved plates.

By E. R. OWEN*

**Engraving Department, Mercury Press, Inc., Washington, D. C.*

OUR photoengraving department is now and has been on an exclusive magnesium production basis for the past three and a half years. During that time we have developed techniques for trouble-free operation, particularly with reference to printing down on magnesium. The procedure outlined below is the one we use in our photoengraving department.

The Facekote protective film, with which the Zomag plate is covered by the manufacturer, is readily removed by attaching a small piece of Scotch mask tape on the corner and warming the sheet on the stove. The Facekote then strips off without tearing. After removing the Facekote, the sheet of Zomag is placed in the etching machine and given about 3 sec. splash. This removes the oxidation and minor greasiness. The nitrate film formed on the sheet by the nitric acid is a protection from the oxidizing effect of the shop atmosphere. Therefore, several sheets can be prepared, dried, and stored for future use.

The plate is now scrubbed in the print sink, with an 8 in. scrub brush, using pumice and about 3 oz. of dilute chromic acid solution. The chromic solution is made up as a stock, using 2 oz. of flake 99% chromic acid to 1 qt. of water. For the dilute solution use ½ oz. of stock chromic solution to 1 qt. of water. Using the large brush for scrubbing makes unnecessary any contact between chromic acid and the hands, and so protects anyone allergic to this chemical.

After the plate has been scrubbed as above, pour on 2 oz. more of the dilute chromic acid solution and work over with a 3 in. etching brush. This brings chromic acid in contact with all the metal surface, depositing a chromic film, thus insulating it from all tap water impurities. Then flush the plate well with tap water, not limiting the amount necessary to wash off all pumice. Coat with cold top as usual, using a cold top that is high in ammonia content, which should be between pH 9.0 and 9.5.

Whirling should be the same as for zinc, which is dependent on the density of the cold top solution and the thickness of the desired coating. Printing time is normal and the usual precautions are observed. Developing can be done in the same alcohol bath as is used for zinc, provided a simple precaution is taken. Most developing tanks are made of galvanized or stainless sheet steel. Magnesium is electro-positive to this and most other metals. Magnesium in contact with one of these metals sets up an electrochemical effect and spotty prints can be traced to this source. This can be overcome by insulating the plate from the tank by constructing a light wooden frame to set into the metal rack usually used. As an alternative, a rack made of hard rubber or other insulating material can be used. Our insulating frame is made of ⅛ in. Polystyrene, a plastic that is inert to alcohol.

If developing is done in a tray, two or three pieces of ¼ in. glass strips laid on the bottom will serve the same purpose and will keep any sediment from being stirred up. Developing time should be kept as short as possible. To facilitate development, our tank is kept at 90 deg. F.

The etching bath is prepared at 7% using 40 deg. Baume nitric acid. The etching powder used with best results is a mixture of 50% Mallinckrodt heavy and 50% Hunt's No. 57.

Zomag burns in faster than zinc, its property of high heat diffusivity accounting for this, with the result that the etching powder is fused in half the time needed for zinc, both on 16 ga. and 11 pt. The general etching procedure is the same, five bites being given on 65 screen combination work. In our opinion, we get more consistently good etchings, due no doubt to the smooth etching properties and ease of handling, with much less strong acid fumes. The processing of 11 pt. Zomag has shown the greatest production increase, 18 in. by 24 in. flats etched to minimum of 0.030 in. taking six bites in an average of 1 hr.

The clean-off procedure is the same as for zinc. If the brilliance of the Zomag is objected to by the router, the surface can be dulled by flowing with a weak solution of copper acetate, or a weak solution of a spent acid bath in which zinc has been etched. However, this dulling is on the surface and will be lost as soon as the routing operation removes it, so we have become used to the metal as it comes from the etch bath.

Zomag machines well, the chips being light and cool, but have a tendency to fly readily. The good machining properties allow 11 pt. metal to be beveled on the regular beveler with no changes made and fed at the usual speed. This provides a bevel that fits the patent base clamps. Also, in routing large areas a ⅜ in. cutter can be used, clearing large areas fast and enabling us to provide the printer with a square finish plate.

Finishing is routine, the metal tooling smoothly though brittle when dots or burrs are raised. However, experience shows that a modified technique can be developed and all reasonable repairs made. No consistently good soldering is being done, but experience also shows less need for it with a resulting superior plate.

Please take a look at your address on the wrapper in which *Printing Equipment Engineer* is sent to you at your place of employment. If it isn't correct, please tell us about it on a postcard.

Research and Engineering Council Conference

Summaries of reports indicate what is going on in Graphic Arts Research such as fixed curvature electrotype and also laminated electrotype plates, Lithure offset plate and re-engineered Electronic Color Scanner.

By MacD. SINCLAIR

THE Research and Engineering Council of the Graphic Arts held its annual meeting at the Westchester Country Club, Rye, N. Y., December 10 and 11. Approx. 125 printing executives, research men and others interested in this industry-wide organization attended.

Printing Equipment Engineer cannot resist the temptation to remark that the organization and continued existence of the Council is built on solid ground. The further enlivenment of its members at the Rye meeting with respect to economic utility of the Council in the Graphic Arts industry, was indicated by the general tenor of the meeting. Executives attending the meeting represented a cross-section of the industry itself. They seemed to sense the value of the Council after listening to research progress reports, visits to The Conde' Nast Plant in Greenwich, Conn., Time-Life's research laboratories in Springdale, Conn., and the enthusiastic adoption of a three-year underwriting plan which will enable the Council to be of even greater value to the entire Graphic Arts industry.

Under the new plan, company members will pay minimum dues of $100 a year, on a three year basis. National and local Graphic Arts associations will be invited to become members of the Council without paying dues. They will be urged, however, to contribute to the Council, but will not be required to do so. Individuals will also be invited to join without paying dues, but will be urged to make contributions. As of December 15, a nucleus of 28 company members had already agreed to continue their membership under the new $100-a-year dues plan. A campaign is now under way to urge other companies to become dues paying members.

Lagging Management

Arthur Wetzel, President, Wetzel Brothers, Milwaukee printers, and President of the Printing Industry of America, Inc., addressed the Council. The title of his address was: *Lagging Management in the Graphic Arts*. His address was constructive. Considering the annual volume of the industry in comparison with other leading industries, Graphic Arts management is lagging. In many respects, said he, the Graphic Arts industry is not conscious it has a management problem with respect to advances in science and technology. He asserted that printing productivity must be increased so that work can be done at a lower price. He urged R&E Council management members and those next to management to encourage participation by their firms in the Research and Engineering Council to help raise the level of management.

Ways and Means Committee

Chairman Frank F. Pfeiffer appointed a Ways and Means Committee to examine the structure of the Research and Engineering Council, to make recommendations for future substantial support as well as a program of future conduct of Council activities. The committee is as follows:

Chairman—Edward W. Triebe, Vice Pres., Kingsport Press, Kingsport, Tenn.

Lee Augustine, Vice Pres., The Printing Machinery Co., Cincinnati, O.

William Baumrucker, jr., Production Mgr., Washington (D. C.) *Times-Herald*.

James R. Brackett, General Mgr., Printing Industry of America, Inc., Washington, D. C.

Norman C. Bridwell, General Supt., Graphic Arts Corp. of Ohio, Toledo, O.

James R. Bowler, General Supt., Courier-Citizen Co., Lowell, Mass.

Joseph Chanko, General Mgr., The Conde' Nast Press, Greenwich, Conn.

George H. Cornelius, jr., Manager, Cornelius Printing Co., Indianapolis, Ind.

John H. Davis, jr., Manager, Judd & Detweiler, Inc., Washington, D. C.

Clair M. Donovan, General Supt., Wheeler-Van Label Co., Grand Rapids, Mich.

Harold M. Davis, Vice Pres., Davis & Delaney, Inc., New York, N. Y.

E. R. Duffie, Chemist, Sun Chemical Corp., E. Rutherford, N. J.

George C. Fetter, jr., Superintendent, Fetter Printing Co., Louisville, Ky.

Wade E. Griswold, Executive Director, Lithographic Technical Foundation, New York, N. Y.

Fred A. Hacker, Vice Pres., American Type Founders, Elizabeth, N. J.

Wm. D. Hall, Research Director, Folding Paper Box Assoc. of America, Chicago, Ill.

Harris Haywood, Manager, Haywood Publishing Co., Lafayette, Ind.

Harry F. Howard, General Supt., Plimpton Press, Norwood, Mass.

OFFICERS

of the R&E Council

Chairman, Frank F. Pfeiffer
Vice Chairman, Edward J. Triebe
Vice Chairman, John H. Davis, jr.
Treasurer, Joseph Schwartz
Secretary, J. Homer Winkler

Arthur N. Knol, Vice Pres., W. F. Hall Printing Co., Chicago.

Alfred J. Moran, Manager, Thomas J. Moran's Sons, New Orleans, La.

Dwight L. Monaco, Vice Pres., McGraw Hill Publishing Co., New York, N. Y.

Peter Mallon, Manager, Peter F. Mallon, Inc., Long Island, N. Y.

Col. E. W. Palmer, President, Kingsport Press, Kingsport, Tenn.

Frank F. Pfeiffer, General Mgr., Raynolds & Reynolds Co., Dayton, O.

Eustis F. Rawcliffe, Superintendent, Case Hoyt Corp., Rochester, N. Y.

Joseph Schwartz, President, Westcott & Thomson, Philadelphia, Pa.

J. Bernard Snyder, President, American Typesetting Corp., Chicago, Ill.

C. Howard Thomas, President, National Publishing Co., Inc., Philadelphia.

D. W. Schulkind, President, E. P. Lawson Co., New York, N. Y.

A number of the Research and Engineering Council executive committee members admire scale model of The Conde' Nast Press plant in Greenwich, Conn. on Monday, December 10. Approx. 100 executives toured the plant under supervision of General Manager Joseph Chanko. From left to right: Wade E. Griswold, Executive Director, Lithographic Technical Foundation, New York, N. Y.; Frank F. Pfeiffer, Council Chairman and Executive Vice President of Reynolds & Reynolds Co., Dayton, O.; John H. Davis, jr., Council Vice Chairman, and Manager of Judd & Detweiler, Washington, D. C. and Mr. Chanko. At extreme right is Arthur A. Wetzel, President of Wetzel Bros., Milwaukee, Wis., and President of Printing Industry of America, Inc.

Visit to Conde' Nast Press

ON Monday, December 10, members attending the Research and Engineering Council meeting in Rye, N. Y., were transported by buses to the highly engineered Conde' Nast Press in Greenwich, Conn. Here, General Mgr. Joseph Chanko and assistants escorted small groups of visitors through the plant where well known magazines are printed. This is one of the finest publication plants it has ever been our pleasure to visit. The interior of the plant itself did not have the appearance of having been "dolled up" to impress Research and Engineering Council members—it is kept in clean and bright operating condition continuously. Principally in the composing room, the electrotype foundry, the pressroom and the bindery, it was apparent to the visitor that manufacturing operations are carried out under precisely controlled conditions. There was much to see and much was learned about magazine making operations. The effects of good management and engineering practices together with employee satisfaction permeate the plant. The impression one receives after visiting the Conde' Nast Press plant is that if the principles of plant engineering are beneficial to one plant, they will also be as beneficial to other large and small plants throughout the country.

In this plant are printed such magazines as *Vogue*, *House & Garden*, *Glamour* and *Vogue Pattern Book*. Among magazines printed for others are *The New Yorker*, *Nation's Business*—a total of 60,000,000 copies annually, plus a large output of high grade catalogs. More than 900 persons are employed in the plant.

In the plant of the Conde' Nast Press, Greenwich, Conn., meticulous attention to every detail is exercised to insure high quality electrotypes of precise dimension for the various publications printed by that firm. One of the minor operations (we'd like to call it a major operation) is that after a form has been locked in a foundry chase, it is proofed. But before sending the form to the electrotype foundry, it is placed in the cleaning cabinet shown in this illustration. Here Irving Piestener is shown cleaning the ink from the form under atomizer spray from a mixture of compressed air and type cleaner. After the ink has been washed off, the form is dried front and back with the compressed air nozzle hanging at the right side of the booth. Any fumes are withdrawn through a duct.

Cross Section of Graphic Arts Research

ON Monday afternoon, December 10, after the crowd had returned to the Westchester Country Club from its visit to The Conde' Nast plant in Greenwich, Conn., and dinner at the Clam Box, the membership meeting was held.

Considering the research work being conducted in the Graphic Arts as reported by various Council members attending the Rye, N. Y. meeting, those printing executives not too familiar with industry research activities can get a fair cross-section by scanning the following abbreviated summaries of reports presented to the meeting. Many groups are working toward reduction in manufacturing costs. It is a function of the R&E Council to keep the industry advised about research progress and to be of assistance wherever possible in promoting research and an engineering approach to plant management.

Battelle Forms European Div.

J. Homer Winkler announced that Battelle Institute is establishing a Battelle European Research Div. in Geneva, Switzerland. All types of research eventually will be engaged in. For the time being, however, research work will be passed out to universities and other organizations. Battelle will send its men to the new research division and in turn staff men will be sent to Battelle in Columbus, O., on an exchange basis. The new division now is engaged in combing the field of science and technology.

Mechanical Edge Gilding

William T. Reid, Supervisor, Graphic Arts Technical Div., Battelle Institute, Columbus, O., presented a brief summary of Graphic Arts research being carried on at Battelle. A total of 44 people are employed in the division. Continuing work is being conducted on Xerography to improve the process for the Graphic Arts and for other fields. One application is for the U. S. Signal Corps which is related to military photography. He stated through the use of a non-silver substitute emulsion no one need worry about the effects of A bombs on the emulsion. From 30 to 40 lines per mm. in continuous tone photography has been achieved. Battelle's edge gilding project, he said, has been completed. A mechanical method for edge gilding will be available in three or four months. He discussed a method for the simple control of nitric acid etching of zinc which has been published in booklet form and is generally available. The chief problem in this connection is to etch in one direction without etching in the other direction. He discussed briefly the work being done for Photo-Engravers Research, Inc., and for Gravure Research, Inc.

Electrotype Plate Development

Joseph Schwartz, President, Westcott & Thompson, Philadelphia, first reported for Printing Plates Research, Inc., of which his firm is a supporting member. He said the research work is progressing with respect to producing equipment and methods for a better duplicate printing plate with reduction in manufacturing cost.

Mr. Schwartz then reported development of three pieces of equipment for making non-stretch curved electrotype plates. Work on the new method for curving, shaving and finishing electrotype plates was started by his firm three years ago. The objective was to produce a curved plate which will reduce press down-time. Another objective is to produce a curved plate satisfactory to the letterpress printer. In the new method, it is not necessary to reform a plate to curved shape from a flat shape. It is necessary, however, to install equipment for every plate diameter according to diameters of the plate cylinders on the presses. The plate backing is cast to the shell in curved form. He said plates made by the Westcott & Thompson method are now being run on Cottrell, Miehle and Harris rotary presses.

Mr. Schwartz reported that since the backing for the electrotype plates is cast to the copper shell in the same curvature as the press plate cylinder, no stretching of the plate could occur during fabrication.

The curvature of the core of the Westcott & Thompson closed mold casting box is made to fit the diameter of the plate cylinder on the press on which it is to be run. The copper shell is deposited in the flat mold in the usual way. The shell is then placed in the casting box and is curved with the printing face of the shell against the curved surface of the mold which corresponds to the outside dimension of the plate cylinder with the plate mounted on the cylinder itself. The printing face of the shell is held against the curved surface of the core in the box by vacuum. At present the backing metal is poured into the box by hand, but later on it is expected that gravity metal pour will be employed. In this way, the circumference of the plate will be the same as the outside diameter of the press cylinder.

Flat electrotype plates which have been used previously, can be curved without stretch after removal of the original backing metal.

After the backing metal has been poured, the curved plate is removed from the casting box. It is then placed in a rotary type shaving machine to bring it down to the desired thickness. The spiral cutter can take up to 0.050 in. thick in

one cut. Here again, the curvature of the saddle in the shaving machine is exactly the same as the outside diameter of the plate cylinder with the plate mounted on it in the press.

The plate is then proofed in a curved plate proof press to determine its printing quality and just where any hand finishing might be necessary.

The third machine is called the curved plate straightener. Automatic adjustable hold-downs secure the plate. The plate finisher thus is free to use both hands in his work of bringing up low spots on certain areas which might need his attention. After the finisher has completed his work, the plate is passed through the shaving machine for its finishing cut from the back of the plate.

Mr. Schwartz exhibited a number of press sheets taken from actual production jobs. One of these was a four color job in which the plates were placed side to side on a Miehle press. Another sheet contained 30 sets of carton wrappers printed by color process on a Cottrell press. He also exhibited another sheet printed on a Harris rotary letterpress.

He then stated that plates curved by the W&T method can be printed in register over subjects printed from flat plates for color. He observed this would be valuable to the boxmaker.

Fast Magnesium Etching Method

H. E. (Ned) Swayze, Research and Development, Dow Chemical Co., Midland, Mich., discussed interestingly developments related to magnesium products for the Graphic Arts industry. A great deal of work has been done on magnesium stock to increase press life of plates. Surface treatment by chemical means and anodizing has been disappointing. Chrome plating on the other hand has resulted in increasing press life from 5,000,000 imp. to 35,000,000 imp. A great deal of the field experimenting, however, has been done on heavy stock. Work on magnesium structure for plate mounting material is proceeding. In die cast material a compression yield strength of 6000 lbs. per sq. in. has been obtained as compared to 5200 lbs. for load or type metal. The die-cast product has not met with too much success probably because of the price. The problem still exists in the printing field for a substitute for wood at a price comparable to wood.

Because of the development of phototypesetting, a faster method of etching publication plates is needed. In the case of the letterpress printer who has a heavy investment in equipment, the present equipment must be utilized for this purpose. The only known method of utilizing film in letterpress printing is by photoengraving. He said a method for fast engraving has passed the laboratory stage at Dow Chemical. A method has been arrived at which looks like it will yield what is wanted with respect to a faster etching method. The industry may expect announcement of the method within the next year or so, particularly with respect to line engravings.

He said Dow is now checking a supersonic soldering iron brought from England for repair and/or fastening magnesium plates together.

For dry offset printing, Mr. Swayze reported that plates of 0.025 in. and 0.032 in. thicknesses appeared to be satisfactory for mill run commercial printing. Embossing of the offset blanket apparently is not too serious. Chairman Pfeiffer substantiated Mr. Swayze's observations with respect to press life of high etch magnesium plates. He said that in one instance a 22 in. by 34 in. high etch plate after running 5000 impressions had been taken off and put on the press several times. His concluding remark was: "We don't have to worry about the chemistry of offset."

Equipment Needed for Etching Magnesium

Norman Bridwell, Production Mgr., Graphic Arts Corporation of Ohio, discussed magnesium plates for dry offset printing. He said he was somewhat at a disadvantage because the previous speaker had stolen some of his thunder. However, basic research on magnesium plates has been taken up for his company by The Jones Graphic Arts Producs Co., Albuquerque, New Mexico. The evil of undercutting the side walls while etching is being worked on. Up to the present improvised methods have to be used. Rocking tubs for etching are too slow. Much is to be done in providing proper equipment for making magnesium plates. He mentioned that the use of micrometers in setting press rollers and perhaps a different type of blanket especially for dry offset printing will be developed.

Lithographic Technical Foundation Research

Wade E. Griswold, Executive Director, Lithographic Technical Foundation, reported that LFT has "stayed pretty much on the track" in doing research work as listed in R&EC Research Bulletin RS-2. Among the projects mentioned were recording densitometer, working out tests for blind images on plates, copper-aluminum bi-metal plate, new non-bichromate plate coating and several others.

Insert Tipper Completed

John H. Davis, jr., Judd & Detweiler, Washington, D. C., discussed his company's RS-2 report in which his firm was developing an automatic inserter which tips an insert into a booklet. The work has been completed. He also reported

R&EC Executive Committee

At the Rye, N. Y., annual meeting of the Research and Engineering Council of the Graphic Arts Industry, Inc., 29 executives were elected as members of the Executive Committee. After election of the executive committee members, it was proposed that all present officers be elected. This was done by unanimous vote.

Executive committee members are identified as follows:

William Baumrucker, jr., Production Mgr., *Times-Herald*, Washington, D. C.

Al Benjamin, Publications Corp., New York, N. Y.

Alphonse Bihr, Palm, Sechteler & Co., New York, N. Y.

James R. Brackett, General Mgr., Printing Industry of America, Inc., Washington, D. C.

W. B. Burgard, Production Mgr., The J. W. Clement Co., Buffalo, N. Y.

Joseph Chanko, General Mgr., The Conde' Nast Press, Greenwich, Conn.

John H. Davis, jr., Council Vice Chairman, and Manager, Judd & Detweiler, Washington, D. C.

John J. Deviney, U. S. Government Printing Office, Washington, D. C.

Elliott Donnelley, Asst. to the President, R. R. Donnelley & Sons Co., Chicago.

Arthur Dressel, Vice President, R. Hoe & Co., New York, N. Y.

G. L. Erikson, Vice President, Braden-Sutphin Ink Co., Cleveland.

Lloyd J. Ford, Harrigan Roller Co., Baltimore, Md.

Russell J. Hogan, President, Wilson H. Lee Co., Orange, Conn.

Morris S. Kantrowitz, Director, Div. of Tests and Technical Controls, U. S. Government Printing Office, Washington, D. C.

William R. Maull, The Mead Corp., Chillicothe, O.

C. A. Mawicke, President, Pontiac Engravers & Electrotypers, Chicago.

Kenneth P. Morse, Executive Vice President, Standard Register Co., Dayton, O.

Frank F. Pfeiffer, Council Chairman, and General Mgr., Reynolds & Reynolds Co., Dayton, O.

Joseph Schwartz, President, Westcott & Thomson, Philadelphia.

Frank M. Sherman, Executive Secretary, Intl. Typographic Composition Assoc., Philadelphia.

Bernard Snyder, President, American Typesetting Corp., Chicago.

C. Howard Thomas, President, National Pub. Co., Inc., Philadelphia.

Edward J. Triebe, Council Vice Chairman, and Vice President, Kingsport Press, Kingsport, Tenn.

Ralph B. Tufts, Research Director, Cornelius Printing Co., Indianapolis, Ind.

Robert Wadewitz, Western Printing and Litho Co., Racine, Wis.

Wm. C. Walker, Associate Research Director, National Printing Ink Research Institute, Bethlehem, Pa.

A. S. Wentworth, General Manager, Printing Div., Westinghouse Electric Corp., Trafford, Pa.

William Winship, General Manager, Brett Lithographing Co., New York, N. Y.

J. Homer Winkler, Technical Advisor, Battelle Institute, Columbus, O.

The Research and Engineering

Council

held its annual meeting at Westchester Country Club, Rye, N. Y., on December 9, 10 and 11, 1951. The meeting was distinguished by enthusiastic adoption of a three-year underwriting plan to amplify Council utility to the Graphic Arts industry, by a visit to the plant of Conde' Nast Press, Greenwich, Conn., and a visit to Springdale Research Laboratories, Springdale, Conn.

1.—Victor Strauss, Piped Piper Press, New York, N. Y.: J. Homer Winkler, Technical Advisor, Battelle Institute, Columbus, O.; Frank F. Pfeiffer, General Mgr., Reynolds & Reynolds Co., Dayton, O.; E. W. Triebe, Vice President, Kingsport Press, Kingsport, Tenn.

2.—Axel Lundbye, Research Dept., Kable Printing Co., Mount Morris, Ill.; Robert B. Davis, Vice President, of Davis, Delaney, Inc., New York, N. Y.; Norman H. Kreisman, Sales Rep., Isaac Goldmann Co., New York, N. Y.

3.—Morris Kantrowitz, Technical Director, U. S. Government Printing Office, Washington, D. C.; Geo. H. Cornelius, jr., Cornelius Printing Co., Indianapolis, Ind.; Robert A. Stewart, Service Engraving Co., Detroit; Wm. H. Wood, Chief Chemist, Harris-Seybold Co., Cleveland.

4.—Dick Leberman, Wetzel Bros., Milwaukee, Wis.; Glenn Parker, Kalmbach Pub. Co., Milwaukee, Wis.; Herbert Pillen, General Mgr., and W. N. Freeman, President, both of Mercury Press, Inc., Washington, D. C.

5.—Howard P. Wampler, Waverly Press, Inc., Baltimore, Md.; H. M. Fritz, Production Mgr., Wm. G. Johnstone Co., Pittsburgh, Pa.; Wayne Adams, Executive Vice Pres., Magill-Weinsheimer Co., Chicago examine printed sheets during visit of Research and Engineering Council members to plant of Conde' Nast Press, Greenwich, Conn.

6.—J. Homer Winkler, Technical Advisor, Battelle Institute, Columbus, O., and President, Intl. Association of Printing House Craftsmen, and Wm. T. Reid, Supervisor, Graphic Arts Div., Battelle Institute, Columbus, O.; Joseph Schwartz, Westcott & Thompson, Philadelphia.

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that the work of changing over folding equipment to do specific types of jobs has been successful. An individual vacuum cleaner has been developed which has eliminated batters resulting from clay particles. He reported his firm had been working on a rubber roller formulation and was pleased to announce a formulation had been devised through which rubber rollers now do a beautiful job of printing. He stated his firm was a pioneer in chrome plating electrotypes. Chrome plated electros, after a million impressions have been taken from them, produce printing which is so close to the first impressions that any deterioration is not visible to the eye. Printing progression is black, red, blue with yellow last, in that order. Judd & Detweiler is now looking into the feasibility of chroming plates for shorter press runs. He concluded his report by stating his firm wanted a counting device when gathering books on a rotary gatherer, so one was built. The books are now gathered and put into continuous trimmers without interference.

Tape Reading for Justowriter Corrections

Frank DeWitt, Research Director, Commercial Controls Corp., reported that the research project listed in R&E Council Research Bulletin RS-2 has been completed and is now on the market. The firm is now working on 8 pt. and 10 pt. type sizes to amplify the 12 pt. faces now available. Work is going ahead on a tape reading device to permit running the tape through the recorder to make corrections.

ANPA Research

Research Director, C. M. Flint of ANPA Research discussed a number of projects associated with ANPA research. He said that not much is being done at the present time with respect to applying standard offset to newspaper production. He also reported on newsprint investigation at the Institute of Paper Chemistry, development of procedure for evaluating the ink receptivity of newspaper, and determination of the factors which influence deposition of ink on news stock at press speeds. He reported that work on an automatic plate router had been completed but it was found an English patent on the same type of device had been issued some time ago. Both devices won't work without certain features of the other. He stated ANPA's work on rapid etching of a photoengraved plate is not duplicating the work being done by Dow Chemical Co. His department is also working to develop a process for automatic powdering of halftones which is now done by hand. Flint also reported that the work on perfecting a method for eliminating the hand packing of stereotype mats is the toughest job ever undertaken by the ANPA Research Dept. Newsprint can now be waterproofed for newspaper home delivery. In other words, a "raincoat" can be applied to newspapers on the conveyor system while papers are traveling from the press to the mailroom. This can be done economically. He announced completion of developmental work on a press web control in which is provided a reservoir of paper in connection with a moving web so that in a deformed roll of paper the tension of the web is not affected.

Plastic Plates

Sigfried Higgins of The Bakelite Corporation, said work was going ahead on improved plastic matrix materials. Work is proceeding on plastic plates for rotary presses. Little or no work is being done on thermoplastics. Work is now in progress on thermosetting plates with fine screens. The results are encouraging.

Huebner Developments

William C. Huebner, inventor of photocomposing and many other methods and processes for the Graphic Arts industry presented a rather startling report concerning some of the developments originated in his laboratories. He announced that recently The Huebner Company, a wholly owned subsidiary of the Standard Register Co., Dayton, O., has been formed. The firm will handle Huebner's many patents and develop certain of them for the industry. Among other inventions discussed were that ink can be migrated to paper without offset. Chemical smoke in various colors can be migrated to paper and dried instantly. Images can be formed by light without the use of photographic papers. The Huebner camera reversing lens can be turned manually or by remote control from the dark room. He discussed new camera equipment in which pre-determined and exact register can be obtained by the subtraction method. When the exposure has been completed the image is dry. He also mentioned the Phototex-type photocomposing machine which can be operated from any kind of keyboard.

Good Housekeeping Prevents Fire

(Abstracted from an address *Fire Prevention in the Printing Business* delivered before the 32nd Annual Convention of the Intl. Assoc. of Printing House Craftsmen in Boston, August 1951, by Edward N. Montgomery, Deputy Chief in Charge, Fire Prevention Div., Boston Fire Dept.)

GENERALLY speaking, it has been well said that a clean printing shop doesn't burn. In other words, in the language of firemen: "Good housekeeping is the best fire prevention." In your business, serious fire hazards consist of: haphazard storage of highly flammable fluids and solvents, spontaneous ignition of oily and inky rags, incorrectly placed gas burners and other heating and lighting apparatus. Careful attention to these situations will keep fire away. Oily or inky rags should be kept in metal bins with self-closing covers. These should be emptied frequently. All floors, especially under machines or motors, should be kept clean of all ink, dust and waste paper. Large quantities of paper storage—both rolled and flat—should be stored in small stacks with access on all sides. Most careful attention should be given to your dryers, since they top all of the specified causes.

Phototypesetter Design Has Been Frozen

William W. Garth, jr., President of Graphic Arts Research Foundation, discussed operation of the Foundation. Including the year 1952, Mr. Garth stated that the various interests involved in the phototypesetting activity of what is now the Foundation will have experienced an absolute minimum cost of $850 thousand. This year the Foundation is operating on a $125 thousand budget. His organization is constantly looking for new ways of doing things. He said the design of the Higonnet-Moyroud phototypesetting machine has been frozen. It is anticipated that 10 of the machines will be in production in the Spring. Work has already been started on the project for designing an automatic page makeup machine. In this development, the final film will be produced by a rapid selector process at 10 lines per sec.

Many Developments at the GPO

M. S. Kantrowitz, Technical Director of the Government Printing Office, presented a fully detailed report concerning research at GPO. The first of these was *Transparent Proofs from Type Forms*, a bulletin having recently been published for the process for making opaque prints from type forms upon ethyl cellulose 0.003 in. thick. These proofs are used as positives in photo printing deep-etch and reverse albumin plates. (See Nov. 1951 issue *Printing Equipment Engineer*.) Research is being extended to production of transparent proofs on Cellulose Acetate and Vinylite. Other projects which have been completed or are being investigated are Electrolytic Tinning of Electrotype Shells, Lead-Tin Alloy Plating of Electrotype Shells, Special Tape for Film Splicing, Rabbit Glue for Bookbinding and Manufacture of Press Rollers, Heat-Seal Adhesives, Casing-in Paste, Cold Pressure Lamination, Preservation of Bookbinding Leather, Nylon Thread, Gold Leaf Stamping with Lead-Base Type, Glycerine Substitutes, Detergents, Plastic Plates and Printing Inks. Cooperation of rolled-gold manufacturers led to development of electrically-deposited rolled gold suitable for stamping on Pfleger hand-stamping presses employing Linotype slugs instead of brass type.

Mr. Kantrowitz also reported development of an adhesive tape for splicing strips of film and for fastening in corrected film inserts made on the Intertype Fotosetter. This tape is coated one side with a permanent type resinous adhesive which leaves no dark gummy edges or outlines to confuse the image, and does not become sticky or turn yellow with age.

Magnesium Blackening An Aid to Routing

Herbert Morrow, jr., Research Mgr., Rochester (N.Y.) Institute of Technology, reported that the project on which the Institute had been working—the Photo Cast process—is not feasible for commercial use. He also reported on improvements in molded plastic duplicate printing plates. Work on development of photoengraving resists is being continued, as is work on lithographic production of newspapers and publications by offset-lith. The chemical blackening of magnesium engraved plates as an aid to routing has been effected through an iron-thiosulfate formulation. A back-coating for copper photoengraving plate stock is being worked on. Work on the electro-static transfer of images is in progress.

Mergenthaler Research

L. Rosetto, Research Director, Mergenthaler Linotype Co., discussed the recent acquisition of Davidson Corporation, in Chicago. Research operations have been completely integrated with the Linotype Co. in Brooklyn. The Davidson line of presses has been reengineered, including feeders and new press models have been developed. He mentioned Linotype Models 33, 34, 35 and 36, which, he asserted, have been designed from the simplicity and safety point of view. He also discussed the Comet high-speed machine which may be operated manually or by Teletypesetter equipment. A long term research investigation is being conducted with respect to tolerances in matrices and slugs.

Harris-Seybold Research

Wm. H. Wood, Chief Chemist, Harris-Seybold Co., reported briefly that the company's new collating machines are now in operation. Trimmers for book and magazine printing have been developed. A bi-metallic offset-lith plate is under development. Light sensitive coatings are being worked on continuously. Continuing programs related to improved press feeding mechanisms and machines and processes for aniline printing are being sustained.

NPIRI Research

G. L. Erikson, Vice President, Braden-Sutphin Ink Co., represented the National Printing Ink Research Institute. In a brief (and fastly spoken) report he said a rubometer is being field-tested as is a fineness-of-grind gauge, standardization is occurring with respect to the inkometer, and rheological studies, especially related to trapping of inks are being continued. An engineering approach is being employed in milling studies and a new milling design will provide better inks. A highly theoretical chemical approach is being employed to solve dryer problems. The Institute has been able to complex iron and manganese to get drying results equal to or better than can be obtained from cobalt.

Springdale Laboratories Research Philosophy

ON Tuesday morning, December 11, Research and Engineering Council members were transported by buses from Westchester Country Club, Rye, N. Y., to nearby Springdale Laboratories, in Springdale, Conn. Members of the Council assembled in the auditorium after coffee had been served. Roswell E. Fisher, Research Director, explained informally the work being conducted at Springdale Laboratories. During the visit, research work was in full operation. In his discussion, Mr. Fisher mentioned three major developments. These are the electronic scanner for color separation work, the Lithure offset-lith printing plate, and the light-weight laminated, curved plate for rotary letterpress printing. He also discussed other projects—not all projects end in success; sometimes the laboratory realizes the value of research spending from finding out what roads not to go down. Mr. Fisher frankly admitted that they fell "flat on their faces" in some projects. He stated that many improvements in the fields of ink and composition were still in the research stage.

In his address, Mr. Fisher discussed the philosophy behind the conduct of Springdale Laboratories for the publishers of *Time*, *Life* and *Fortune*. Abstracts from his address are as follows:

"This year for the first time," he said, "we began to operate on the black side of the ledger, *i.e.*, we began to earn our keep. Annual savings in the production costs of our magazines directly and indirectly resulting from new technology developed by Springdale now equal the annual cost of our operations here.

"Without in any sense trying to detract from the credit due our people and the splendid cooperation and help we have had from others, something more must be added to the list of credits to suitably account for where we are today with our activities as compared to where we might be; that something is a management formula developed, I regret to say, the hard way.

ROSWELL E. FISHER

Research Director, Springdale Laboratories, Springdale, Conn., addressed members of Research and Engineering Council, at the Laboratories on Tuesday, December 11.

He related that sponsors of Springdale Laboratories expect a profit in their research expenditures just as business expects to make a profit in its manufacturing operations. In the case of Springdale Research Laboratories, the profit is in production savings which will enable printers of *Time*, *Life* and *Fortune* to produce those magazines cheaper, faster, better.

Presently, approx. 85 people are engaged in and are employed under Mr. Fisher's supervision.

"I have decided to discuss this formula with you because I believe if in whole or in part it was used more widely in the industry more money would be made available to spend on development work and more important gains would result from this spending and effort to the great benefit and prosperity of the industry and to people like us who buy its products and services.

"From my discussions with a large number of industry people over the part 7 or 8 years including the managers of most of the industry's development programs, I have heard a great deal of talk about money. I get the impression rightly or wrongly from these people that they believe if money was available for development work really great things would be done and begin to happen.

"I hope that I won't offend, but these people have the cart before the horse. That statement needs explanation and qualification but money and its availability to finance research and development work is a result not a cause among the factors which originate a development activity and are responsible for its growth and prosperity. I don't know what could be worse than to have an unlimited supply of money with which to conduct research work either in terms of its management or results.

"Our budget here at Springdale has been increased by 600% in five years. We are now spending over a million dollars each year for this activity and we capitalize another three or four hundred thousand dollars in new productive equipment. Time management thinks that roughly a million a year is about what it ought to be spending on production improvement, but this million dollars is no magic figure, and it would be increased or decreased tomorrow if it made sense to do so.

"Also, I would like to correct the impression that Time's treasury is a soft touch for engineers and scientists. The company has the money to spend for the things it thinks will advance its progress. But in this respect it is no different from other businesses and money is no easier to come by with us than with anyone else.

"When we started about six years ago we had the choice of going down one of two roads. We could spend our money and effort on a program aimed at improvements in the conventional machinery, processes, and materials of production, or we could adopt an approach of searching for what appeared to be the best answer to our production problems and thereby accept the risk that a management new to the game would keep faith until more time-taking fundamental solutions could be developed. We chose the latter approach and in doing so established part of our management formula.

"We made the decision on the basis that big problems demand big answers and that what we have come to label as 'improvement or fix-up research' wouldn't be enough.

"This decision is perhaps the most important one that we have ever made. First, it raised management's horizons in respect to the whole show. Here was a new little operation talking and acting as though it intended to be and do some-

thing important. If for no other reason than the noise it was making, it got top management attention.

"The same kind of thinking helped us to obtain the interest and help of large industrial research organizations who decided that here was an outfit that was aiming high, had some ideas for achieving its objectives and a lot of faith in what it could do.

"In this approach to our research activities I think we have an important part of the reason why our program has obtained adequate money support and in general why new development work in the Graphic Arts has not. Businessmen will spend money on ideas promising big gains and accept big risks in doing so but they will not spend big money on small ideas or even small money on small ideas for long.

"With an interesting project agenda, with help, with enough starting money, all we had to do then was to make good on our great promise. That didn't turn out to be so easy.

"Big ideas result,in big failures as well as big successes and in the research business the failures are usually on the heavy side of the balance.

"We have had our share of failures big and little here at Springdale, and we will have more, but the important fact is that both management and our staff expect and are conditioned to failure, *i.e.*, almost.

"We have taken steps to hedge our bets and improve our chances for success through a policy of group thinking and group efforts.

"We live by this rule both inside and outside of the family. And as we apply it, it is not an easy way of life.

PAUL J. THOMA

Associate Research Director, Springdale Laboratories, Springdale, Conn.

"In the organization of our technical family and in the conduct of our operations here at the Laboratories, we have taken special pains to bring group thinking, group decision and group effort to everything we do.

"For example, six people serve as a technical 'Board of Directors' which passes on nearly every decision that is made. Among other things, these people decide in the main what projects will be worked on, who will work on them, when work will be started, when it will be stopped and along with the project engineers how the work will be done. Further, in the case of new development which is successful, this group is responsible for its laboratory and field testing and the technology of its commercial introduction.

"Typical of the way we work with others are the major provisions of an agreement recently made with a large unit of the industry to advance a cooperative project:

"1. We mutually agreed to share costs and to charge the project on the basis of cost.

"2. We mutually agree to make without reservation all of our invention, experience, and knowhow available to the project.

"3. We mutually agree to a licensing method covering invention made both prior to and during the term of our cooperative venture which in practical effect would in time make the benefits of any success available to our respective major competitors.

"Both of us felt that anything less than a full effort of this kind would jeopardize the success of the project. Not many people can bring themselves to risk their money, do the work and then share benefits with competitors to that extent in getting the best answer to a production problem.

"But in this arrangement is the essence of effective group research. If you go at cooperative work with your tongue in your cheek and in a spirit of getting instead of giving, group effort sooner or later is bound to fail and it never produces the results hoped for it.

"Facts are the foundation of successful research. If we were to go behind the scenes of most industries probably the same situation would pertain as in the Graphic Arts, so let us say, among others the Graphic Arts industries, in general, are long on information and short on facts about the machinery, processes and materials with which they produce their products.

MRS. M. MURRAY

(M.A., Columbia University) titrates a solution in ink laboratory at Springdale, Conn.

"Our ignorance of this fact early in our program led us into some very embarrassing and costly errors in judgment. We go to great pains now in the planning and conduct of our work not to make that kind of a mistake any more.

"We start out by not accepting anything as fact. What can't be proved is opinion. It may be good opinion and valid when the facts are known, but it's opinion until it is supported by facts. We approve very little research spending any more on the basis of opinion."

Mr. Fisher illustrated this point by saying that a new research project has recently been approved. So far, $150 thousand has been ear-marked for it, but said he, "we could end up by spending perhaps as much as $1 million before we get through."

Mr. Fisher continued: "Before we approved any spending we spent a year collecting and analyzing for proved facts production and business data to confirm as true or false one general premise that we had made in the field of our interest and to search out any other facts that would support that this was or was not an important development job that should be undertaken.

"Our study confirmed our general premise and clearly established that very large benefits would result from new technology that would meet a given set of requirements also established by the study.

"While this study confirmed the problem and spelled out the specifications of an acceptable solution business-wise, it didn't supply the technical facts upon which to base a sound development program.

"Getting these facts was the subject of a second study conducted by our engineers in the laboratories and in the plants of our suppliers.

"We now have enough business facts and technical facts to go ahead with the third fact-finding operation which is the engineering, building and testing of experimental equipment to prove out the facts for a final design.

"Unless you are willing to be that thorough in the planning and conduct of research and development work it has been our experience that you are researching too much of the time in the dark, depending too much on luck, and taking terrible risks with your sponsor's money, the life or your program, and those who depend upon it for their lifelihood.

"On the other hand if you are willing to take pains to prepare your case carefully supporting the 'why,' the 'how,' and the 'how much,' management will not only keep you supplied with money but will not lose faith when you meet the inevitable delays, disappointments, troubles, and extra costs that always attend the job of trying to do things better.

"Summarizing, our formula for doing research and development work and

getting enough money to support it may be simply stated:

"1. Reach for big gains offering the prospect of big profits.

"2. Bring and organize as much mind power and experience to the problems of achieving these big gains as you can buy and beg.

"3. Work on a basis of fact, first, in getting an understanding of the problem, and, second, in the planning and activity of its solution.

"4. Don't worry too much about what is going to be done with the success or how it is going to be divided up until you have some success to divide."

Three Major Research Developments

After a buffet luncheon had been served at Springdale Laboratories, members of the Research and Engineering Council assembled in the auditorium to view a movie by which was illustrated the making of a light weight curved laminated plate. The laminated plate consists of an aluminum backup to which the shaved, lead-backed electrotype is bonded. To illustrate, this new plate is approx. two and one-half times lighter than the conventional lead-backed electrotype. Development of the light weight plate is intended to reduce the evil effects of plate breakage. In addition to development of the laminated plate, the Springdale Laboratory has developed a tension plate lockup plate cylinder system for high speed rotary presses. By means of movable clips engaging slots milled in the underside of the two straight sides of the curved plate, the plate itself is held closely by tension to the plate cylinder through circumferential pull.

All plates in a set of color plates are pre-registered on a registering machine in which a transparent plastic sheet receives an impression from an inked key plate. The registering is done by the registering of halftone dots and referenced by the punching of two register holes in the edges of the flat electrotype.

The flat color electrotypes are each in turn registered dot for dot to the impression on the plastic sheet from the key plate. Through the rest of the fabricating operations, the register pins are used to keep the plate in its pre-registered position.

After registering and flat proofing, the flat electrotypes are curved. Next, they are laminated in a bonding machine to the aluminum backup. The adhesive used is thermosetting; very high pressures and temperatures are used in this operation. Finally, the finished plate is beveled, then curved proofed, and is now ready for the pressroom.

In locking up the tension plate on the press cylinder, a torque wrench is used to exert the pre-calculated amount of tension to the clips in the internal locking mechanism. When this proper tension has been reached, the wrench slips automatically.

During the Tuesday afternoon session, Mr. Fisher explained that the Springdale Electronic Color Scanner is undergoing alterations.

The Springdale Lithure Offset printing plate (one of the major developments announced by Printing Developments, Inc.) was explained enthusiastically by Mr. Fisher. Among his comments were that the bi-metalic Lithure plate durability is such that the millionth impression is as good as the five thousandth impression. This plate is composed of a sheet of chrome-plated copper. In processing, the platemaker etches through the chrome to bare the copper printing surface. It is the copper surface that prints the image.

New IPI Branch

The Printing Ink Div. of Interchemical Corporation has announced the opening of a new IPI branch office and service station located at 117 W. Griffith St., Charlotte, N. C. According to IPI, the branch will serve the Piedmont area. It is accessible by overland trucks and a railroad siding leads directly to the rear of the building. Morris Wachtel is in charge of the IPI Charlotte branch. The service station is equipped for mixing, milling, color matching and proofing. A special section is devoted to inks for aniline and Anilox type presses. Ample storage space has been provided for both raw and finished materials, including news inks.

Consolidated Merger

The merger of Consolidated Photo Engravers & Lithographers Equipment Co. into Consolidated Hammer Dry Plate & Film Co. was recently announced by Benjamin Sugarman, President. In accordance with the agreement reached between the two companies, Consolidated Hammer Dry Plate & Film Co. has assumed and agreed to pay all obligations and debts of Consolidated Photo-Engravers & Lithographers Equipment Co., Inc. At the same time, Sugarman also announced the acquisition of a new and larger plant at 1112 N. Homan Ave., Chicago, containing over 45,000 sq. ft. of space.

MLCo Annual Report

In the 1951 Annual Report issued by Mergenthaler Linotype Co. Martin M. Reed, President of the company, states that production of Linotype equipment continued on a high level during the 12 month period ended September 30, 1951, with emphasis on the Blue Streak Comet Linotype and the ML Quadder. At the same time, according to the report, the firm again entered into production of military equipment. The company states that the outlook for both commercial and military production is excellent. The report points out that the Comet Linotype is a result of the company's extensive and intensive research efforts. A summary of MLCo.'s world-wide activities is presented in the report under the heading Foreign Operation. The cover of the annual report depicts in full color some of the products of the Graphic Arts industries which employ Linotype machines in their production.

RIT Expansion Program

A $30 million expansion and modernization program for Rochester Institute of Technology to take place within the next ten years has been announced by James E. Gleason, Chairman of the Institute's Board of Trustees. Of this amount, $12 million is earmarked for the new Graphic Arts center of education, research and information. Included will be the construction of a new building costing $4 million, with an additional $2 million to equip it. An additional $6 million will be used to endow the center. At present the education phase of the program is carried on in the George H. Clark building, erected in 1946. The research and information phases are quartered in a separate building. The $2 million worth of equipment for the Graphic Arts center has already been pledged, according to the announcement.

Tribune Builds Paper Warehouse

As A part of its expansion and remodeling program, the South Bend (Ind.) *Tribune* has constructed a warehouse for the storage of news-print. The new building has a capacity equalling 40 carloads of news-print. It is serviced by a railroad siding on which three freight cars can be accommodated at one time. Facilities also include loading docks for trucks and a garage. The brick and concrete block structure, designed by William Ginsberg Associates, is 65 ft. wide by 166 ft. long.

An electric lift truck is used to unload the rolls of newsprint from the freight cars. A car bridge enables the lift truck to enter the freight car from the loading dock, pick up a roll of newsprint and carry it into the warehouse. One of the loading docks is used to load into a specially-built semi-trailer truck the rolls of newsprint to be transported to the *Tribune* plant. This truck will accommodate nine full-size rolls. Handling methods used in the new warehouse enables two men to unload, store and transport approx. 32 T. of newsprint each day used by the *Tribune*.

PIA Convention Planning

The Associated Printers and Lithographers of St. Louis are making preparations for the 1952 Convention of the Printing Industry of America to be held at the Chase and Park Plaza Hotels, St. Louis, October 12 to 18. Clyde K. Murphy, Vice President, Blackwell Wielandy Co., and Don O. Pyke, Advertising and Sales Promotional Mgr., Graham Paper Co., Chairman and Co-Chairman of the convention and Fred E. Winsor, Executive Vice President, Associated Printers and Lithographers of St. Louis, are now holding a series of meetings of the 15 committees appointed for the convention.

The Lord Baltimore Press

Occupies one-floor building covering 4 A. situated on 25 A. site—Windows eliminated in production departments.

THE position of The Lord Baltimore Press in the commercial printing and box-making fields has recently been enhanced by the completion of its fine new plant. Located at 1601 Edison Highway, Baltimore, Md., adjacent to a modern residential area, the project represents an investment well in excess of $2 million.

This handsome building represents the latest thinking in functional design and engineering within the Graphic Arts industry.

Since its establishment in Baltimore 76 years ago, the company has steadily expanded and now manufactures by conventional lithography and letterpress methods, supplying folding boxes, labels and box wraps to manufacturers of food products, ethical drugs, cosmetics, candy, tobacco and liquors. There is a special department for the production of periodicals and books. Commercial printing is also executed. In recent years, a rotogravure department has been installed to produce package materials.

Fidel-I-Tone Color Process

The company is known for the variety of its products and processes. While no technical particulars are available, it is perhaps its Fidel-I-Tone color process that has brought it greatest prominence. Completely developed in 1945, the Fidel-I-Tone process is used for de luxe reproductions of actual color photography or color artwork on folding boxes. In the 1951 contest sponsored by the Folding Box Association of America, Fidel-I-Tone reproductions won a total of 10 awards for The Lord Baltimore Press.

Expansive Site

The Edison Highway site consists of a 25 A. tract located on the main line of the B&O Railroad.

Advance planning of the project required about four years before ground was broken. This included marketing surveys to project the company's growth potential, engineering studies, trips to modern printing and lithographing plants throughout the United States and actual architectural designing.

Exterior walls of the building are of buff color brick with concrete block backing. Large landscaped areas and parking lots have been provided.

The lobby is modern in treatment and is faced completely with aluminum-framed plate glass windows looking out toward Edison Highway.

Construction of the building was started in October 1949 and was completed early in 1951. The task of installing new machinery and transporting existing equipment from the old plant at 1500 Greenmount Ave. required three months. In March 1951 the general offices were moved and the business officially began to operate from the Edison Highway location.

The total area of the new building is 176,000 sq. ft. and is devoted entirely to administrative and manufacturing facilities. Warehousing and additional manufacturing is done in a separate 75,000 sq. ft. building at Fleet and Haven Sts. The new plant has been designed in such a way that all operations are per-

View in section of offset-lith pressroom, The Lord Baltimore Press, Baltimore, Md. This air conditioned room is well illuminated and there is no high bay lighting problem because of one-story building construction.

formed on one level to facilitate handling of the thousands of tons of raw material that flow through each year.

Another objective of The Lord Baltimore Press has been to create an ideal working environment for processing fine color printing and lithographing. The entire plant is air conditioned and is equipped with sensitive relative humidity controls. These controls are maintained 365 days a year in order to create the same atmospheric conditions regardless of the season or time of day. Such procedures are of immense importance in processing paper and cardboard to prevent stretching and shrinking of the sheets while they are being printed. Atmospheric uniformity results in more consistent drying of color inks, varnishes, and lacquers which are used in the preparation of high grade packaging material.

Lighting Control

Another type of control which The Lord Baltimore Press believes is essential to highest quality is scientific artificial lighting. Manufacturing areas have been designed with virtually no windows and all operations are carried on under artificial lights. Great care has been given to the proper quality and intensity of light. The company's processes deal largely with judging colors to fine tolerances, and a special system of color matching units has been installed to duplicate lighting conditions that would ordinarily be encountered only outdoors. By scientific artificial lighting, it is possible to produce more consistent color work because operations are performed independently of natural daylight sources which vary tremendously from time to time.

View in section of letterpress printing department, The Lord Baltimore Press, Baltimore, Md. Note the combination makeready and sheet inspection tables in front of each press.

Employee Comfort-Safety

Much attention has been given to the comfort and safety of the more than 450 employees in the new plant. Interior decoration has been carried out in restful tones and variation of color schemes from department to department imparts a pleasant sense of variety. Besides the large, well-equipped cafeteria, the company has very complete personnel officers, a safety and training engineer, nurse, first aid room, medical examination facilities, modern locker rooms, washrooms with showers and employee automobile parking areas. A soft ball field has been laid out in the rear of the building and there are company league games several times a week.

View in folding box gluing department, The Lord Baltimore Press, Baltimore, Md. Note the conveyor system for handling packing boxes before and after filling.

Building Area

The shape of the 4 A. building is almost square. Raw material is received by truck at a dock in the southeast corner and by railroad at a siding in the northeast corner.

Raw Material

The raw material is unpacked and organized for processing in a large room which runs the length of the building along the east side. From this central supply area stock is forwarded as needed either to the lithographic pressroom or to the printing pressroom depending on the process to be used. The cardboard and paper advance through successive batteries of presses so that final colors are applied as the material moves toward the west.

Finishing Operations

The finishing operations which include die cutting and gluing of folding boxes and label cutting are performed in the northwest section of the building. After sheets have been converted either into folding boxes or labels the finished product is packed in corrugated containers which flow through automatic conveyors and case sealing equipment to the shipping area at the extreme northwest corner.

Shipping Area

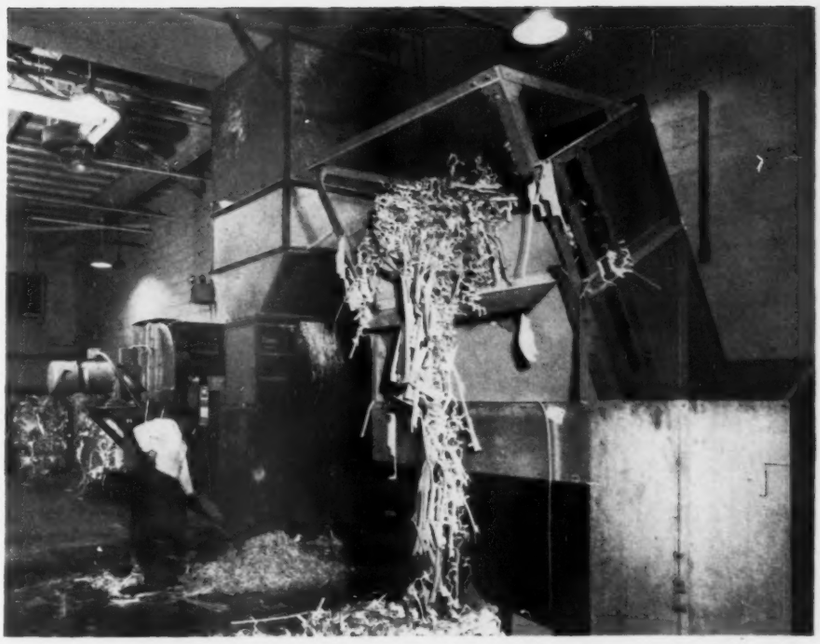
The large shipping area provides for three immense trailer trucks to be loaded simultaneously, the trucks being completely under cover and closed in by electrically operated roll doors. Hydraulic docks at both receiving and shipping platforms can be adjusted to the floor level of the trucks, thus facilitating loading and unloading of heavy material with a minimum of hazard.

The southwest corner of the building is used for the main offices and for preparatory operations such as photography, artwork, proving and platemaking. These departments are so arranged that they have quick and efficient facility to adjacent manufacturing areas with which they are principally concerned. There is a large machine shop for handling almost any type of repair that may be required on equipment in the plant.

Building Details

Electricity for hundreds of motors which drive the machinery is supplied through public utility lines. Two 13,200 v. parallel series bring the power to the 750 K.V.A. transformers which deliver 440 v. to the main service panel. Entrance switch gear is of the latest automatic air-breaker design.

Boiler room equipment consists of two 150 h.p. oil-fired units which supply necessary steam for the hot water converters used in tempering the air and for the main humidifying coils. The oil in the 30,000 gal. tank is electrically heated to 140 deg. F. Conducting pipe lines are also electrically heated to increase the uniformity of the flow.



View in the baling room, The Lord Baltimore Press, Baltimore, Md. In this illustration is shown the end of the conveyor which brings waste from the finishing departments and dumps it on the floor of the baling room. The operator pushes the accumulated scrap under the conveyor dump directly into the baler press pit at the left of the conveyor terminal framework. Above the baling press, suspended from the ceiling, is a wire cage. Waste from the label die cutting machines is delivered into the cage by means of a vacuum exhaust system. The round pipe through which the waste is delivered is visible at the right of the cage. The waste from the label cutting operation then falls into the baler.

Adjacent to the boiler room which is located on the north side of the building is the compressor room and pump mezzanine. Equipment in this area is used for cooling and dehumidification of the air. The two turbo compressors have a combined capacity of 500 T. of refrigeration.

In the center of the building there is a mezzanine deck and penthouse which house the three main ventilating fans of the drawthrough type having an aggregate delivery of approx. 200,000 cu. ft. per min. Here the air is filtered, humidified and cooled before being sent into the plant. Temperature of approx. 75 deg. F. and relative humidity of 48% are maintained at all times.

Waste collection and efficient disposal is an important matter in all printing plants irrespective of size. This is a view in section of box stripping department, The Lord Baltimore Press, Baltimore, Md. This illustration shows one of the ports in the floor into which the waste and scrap from die cut jobs is swept. The pipe frame over the port will prevent serious accident. The scrap is swept on an underground, wide horizontal conveyor belt which runs in the trough throughout the length of the finishing department. The conveyor ports can be opened at any open-floor location by removing a section of iron grill set in the top of the trough and which is flush with the cement floor. As the scrap is swept onto the conveyor belt it is taken to the baling room where it is packed in bales for shipment to paper and boxboard mills for reprocessing.

Laboratory

Other interesting features include a well-equipped laboratory for testing raw materials and conducting research for customers on special packaging problems and an ink department in which colors are formulated and prepared for the two big pressrooms at the rate of several tons a week.

Waste Disposal

In the course of processing folding boxes and labels, scrap areas that are cut away from the sheets amount to many carloads per year. In order to dispose of this efficiently and quickly, the company has designed an underground conveyor which traverses the entire length of the finishing department. This system is arranged with removable ports so that scrap can be shoveled on the moving belt of the conveyor. The scrap is then carried under the floor and through the wall into the baling room where it is accumulated and shipped daily to paper and boxboard mills for reprocessing.

Equipment & Supplies

If you wish additional information concerning equipment, supplies and/or technical literature, please make your request to PRINTING EQUIPMENT *Engineer*, 1276 West Third St., Cleveland 13, Ohio.

When writing to us about any of the items described, and to save your time, just mention in your request the PEE symbol which appears at the end of each description.

Bundle Truck—The Hamilton Caster & Mfg. Co. has designed a two-wheel truck with a 400 lb. capacity for handling bundles of newspapers and magazines. Vertical loading surface of the truck is 18 in. by 44 in. and the lower platform is 15 in. deep. Feet under the lower platform stabilize the truck while cartons boxes, packages or bundles are being loaded. Wood handles are steam bent. Wheels are 6 in. by 1½ in. with molded-on rubber tires and roller bearings. Weight of the truck is 110 lbs. More information may be secured by mentioning PEE No. 243 in your request.

Makeready Booklet

THE details and techniques of makeready on letterpresses are described and illustrated in a 36 page booklet prepared by the Cromwell Paper Co. Designed as a handy reference for pressmen and plant managers, to aid the printer in teaching apprentices and as a reference for students of Graphic Arts courses, the booklet is a digest of the factors which enter into makeready and the methods which can be pursued.

Sections of the two-color, 3½ in. by 8¼ in. booklet deal with mechanical makeready, plate makeready, press preparation, procedure for making a hand-cut overlay, mechanical overlays, and form imperfections. Still others include a discussion of the fundamentals of imposition, special forms and Cromwell Tympan facts. Listed in a table are sizes for top sheets and hanger sheets on various sizes of small letterpresses. A list of European-make presses and their max. sheet sizes is also included. *Printing Equipment Engineer* will gladly see that a copy of this booklet is sent you. Just mention PEE No. 241 in your request.

Load Handling Devices

TO AID power industrial truck users in the selection and application of special load handling attachments, The Elwell-Parker Electric Co. has issued a brochure in which more than 25 of these attachments are illustrated and described. Included in the brochure are such devices as revolving forks, roll paper clamp, hook and boom, electro-magnet, ladle pourer, remote control, upender and others. Copies are available by mentioning PEE No. 235 in your request.

ATF Casting Plan

AMERICAN Type Founders has announced a plan whereby printers and typographers can obtain new fonts of discontinued foundry type faces and sizes, whenever subscription orders reach sufficient quantity to warrant a production run. The plan is designed to take care of the occasional demand for those faces which are used for special purposes where the general demand does not make it feasible to manufacture such types for stock. Orders for fonts of spaces and quads in odd sizes, including 22 pt., will also be accepted under this plan. ATF points out that it is not possible to give estimates or promises on delivery dates under the subscription casting plan, but before casting is started the company will contact all customers to confirm orders. Additional details are available by writing *Printing Equipment Engineer*. Please refer to PEE No. 237.

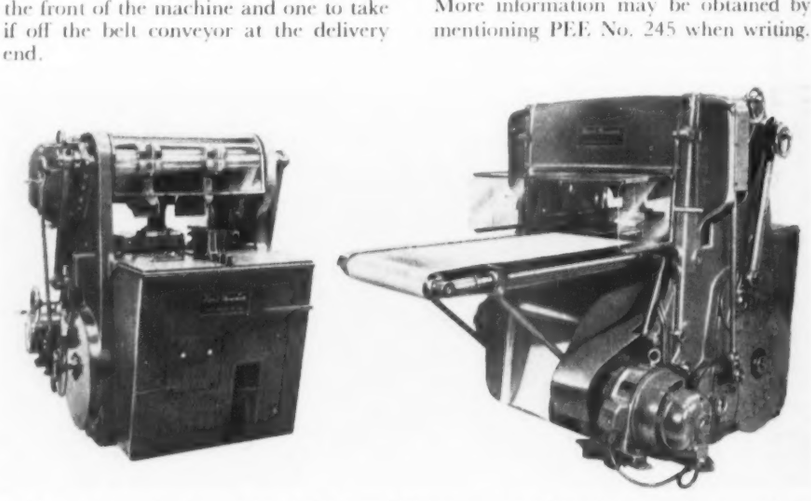
Carbon Form Hand Numbering Machine—Carbonized forms can be numbered accurately and legibly through several copies with the Force Carbon Print Numbering Machine, reports Wm. A. Force & Co., Inc. The machine is equipped with a heavy steel handle and deeply engraved Gothic figures. An adjustable gauge positions the number in the desired place on the form. Platform of the machine is chrome plated. Additional information may be obtained by mentioning PEE No. 240 in your request.

Three-Knife Trimmer

DESIGNED for trimming magazines, books, pamphlets, etc., in one operation is an automatic three-knife trimmer announced by E. P. Lawson Co., Inc. Designated the Rapid Trimmer, the machine automatically handles the in-feeding from the feed table, clamping, trimming and delivery to the belt conveyor at reported speeds of 15 to 25 lifts per min. Operation of the Rapid Trimmer requires an operator to place the work up against the guides at the front of the machine and one to take if off the belt conveyor at the delivery end.

The unit will handle trimmed work in sizes from 2 in. by 3⅛ in. to 11¾ in. by 16⅞ in. Its weight is 4500 lbs. Features of the Rapid Trimmer include a hand wheel with visible divided scale for setting the knives to the desired sizes, provisions for adjustments for feeding and trimming, automatic centralized one-shot lubrication, V-belt motor drive, and variable clamp pressure.

Transparent Plexi-Glass shields cover knives and delivery portions of the machine for protection of the operator. More information may be obtained by mentioning PEE No. 245 when writing.



At left is shown the front view of the Rapid Trimmer, a machine for trimming magazines, books, pamphlets, etc., in one operation. An operator places a lift of work in the machine up against the guides. Operation afterwards is automatic. The right hand view is the rear of the machine showing the belt conveyor which carries the lifts out from beneath the knives after trimming.

Press Problems Bulletin

THE solutions to five typical press-room problems are discussed in a bulletin recently issued by Minnesota Mining & Mfg. Co. The problems pertain to five common papers used in printing. Solutions are given for cutting lost press time on coated paper jobs due to flaking; stopping static, thus speeding printing on label stock; stopping ink smear and smudging on bond paper; eliminating static on onionskin paper jobs; and preventing press stops due to carbon pick-off on carbon stock. Each explanation is accompanied by a drawing of the problem confronted and its solution. Copies of the bulletin are available by mentioning PEE No. 246 in your request.

Motor Control Center

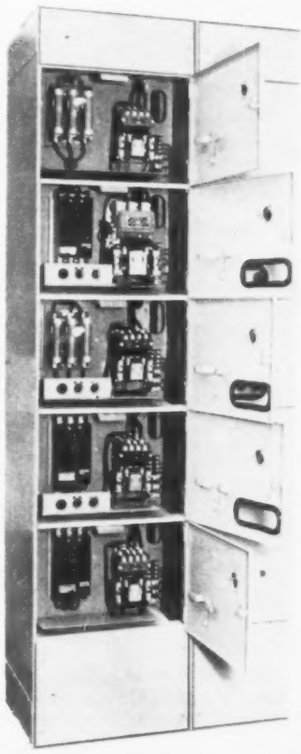
A MOTOR control center for use wherever two or more a.c. motors (up to 200 h.p., 600 v.) are controlled from a central location, has been announced by General Electric's Control Dept. The center, pre-engineered, factory wired and assembled, and employing many standard components and accessories, was developed for use in all industries.

The G-E motor control center designed for use wherever two or more a.c. motors (up to 200 h.p., 600 v.) are controlled from a central location. The center, pre-engineered, factory wired and assembled, and employing many standard components and accessories, was developed for use in all industries.

According to G-E engineers, it provides a method of installing and servicing in a central location a.c. combination motor starters in NEMA sizes 1 through 5, as well as lighting panels and associated equipment for a group of motors. It is claimed the center is designed to withstand short circuit stresses up to 25,000 amps.

Each section measures 20 in. deep by 20 in. wide by 90 in. high. A 4 in. vertical trough (with cable supports) runs the full length of each section providing space for wiring. Metal barriers which separate the starter units can be removed, leaving a continuous wiring trough. All components, including pilot devices, are mounted on the lightweight unit frame.

Starter unit replacement is facilitated by positive-action positioning guides designed to insure correct alignment of



Shown above is one section of the G-E motor control section with the front doors open. Metal barriers separating the units in the section can be removed, leaving a continuous wiring trough. A 4 in. vertical trough (with cable supports) runs the full length of each section providing space for wiring.

starter to vertical bus. To protect personnel, a full length metal barrier separates the bus compartment from the starter units.

Units may be installed from the front or rear of the section and are designed in even multiples of 14 (height of NEMA size 1 and 2 is 14 in.) enabling a variety of arrangements to be made and providing interchangeability. Speed latches lock starter units into position. Additional information on the G-E motor control center is contained in bulletin GEA-4979A which is available on request. Just write *Printing Equipment Engineer* and mention PEE No. 244.

Dayco Multi-color System

METHODS of utilizing one ink fountain for several different color inks in producing multi-color jobs is described in a folder recently released by the Dayco M-C Div., Dayton Rubber Co. Entitled *How You Can Buy More Color for the Same Money*, the folder deals with the Dayco Multi-color System for the printing of booklets, broadsides, catalogs, cartons, labels, letterheads, magazines, posters, etc., using more than one color in the same press run. The System involves the use of the Dayco Fountain Divider and Dayco Color Separator attachments which are available for most models of letterpress and offset presses. The illustrated folder includes step-by-step directions for using the system on both single and multi-color presses. It contains 36 variations of colors which were printed by running the stock through a Harris LST Two-Color press twice. Included also is a list of space requirements needed for separating colors in the ink fountain which is governed by the nature of the job being run. Copies of the folder are available by requesting PEE No. 248 when writing.

Direct-reading pH Meter

THE Cambridge Industrial Model pH Meter is an all-electric, direct-reading instrument developed by Cambridge Instrument Co., Inc. Sponsor claims a 0.1 pH overall accuracy for the meter. Scale is graduated in 0.2 pH divisions with a reading range from 0 to 14 pH. An electrode assembly is an integral part of the meter.

The electrode assembly is mounted on a door at the right side of the instrument.

Closing the door moves the assembly into a compartment inside the instrument case for protection while being moved. A recess in the compartment holds the bottles of buffer and KCl solutions supplied with the meter.

The unit is operated from any 110 v., 50 or 60 cy., a.c. outlet. A voltage regulator is used for line voltage fluctuations over a range of from 100 to 130 v. A conventional bulb type glass electrode is employed which is completely shielded for elimination of electrostatic interference. Sponsor states it can be used directly in tanks or vats and is not affected by grounded solutions.

A resistance thermometer provides automatic temperature compensation over a range of from 0 deg. to 100 deg. C. Weight of the complete instrument is approx. 10 lbs. Overall dimensions are 7 in. wide by 8 1/2 in. deep by 11 3/4 in. high. When writing *Printing Equipment Engineer* for further information, please mention PEE No. 233.

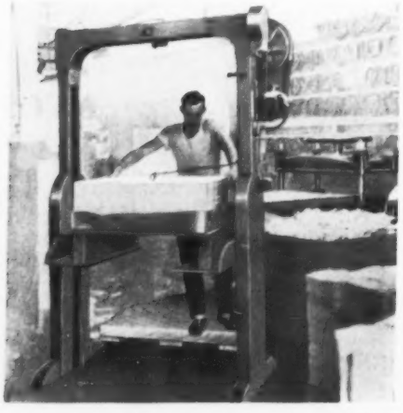
Comparison Bulletin

A BULLETIN which contains a listing of the various grades of all known brands of gummed paper with the corresponding grade (or nearest to it) of Perfection Flat Gummed Papers, has been made available by Paper Manufacturers Co. The bulletin makes possible a comparison between Perfection papers and other gummed papers when it is necessary to check the list to determine which grades in the various lines are similar. The bulletin includes white gummed papers only. If copies are desired, please mention PEE No. 251 when writing.

Walbert Skid Lift

THE Walbert Skid Lift is designed for lifting stacks of paper, cardboard or other materials. Sponsor states it will maintain the top of the pile at any desired height or will raise or lower the pile to any position required, at the touch of a button.

The lift can be used in conjunction with a press not equipped with automatic



The Walbert Skid Lift designed for lifting stacks of paper, cardboard or other material. The lift will maintain the top of the pile at any desired height or will raise or lower the pile to any position required, at the touch of a button.

feed. In this application, the press feeder removes a lift of stock at a time from the skid lift and places it on the feed board of the press. In the bindery, the Walbert machine can be used in conjunction with a paper cutter for cutting and trimming operations. It eliminates the need of the cutter operator bending over to lift the stock onto the cutter. Other uses for the skid lift are in die cutting and various handling operations.

The top of the stack automatically raises to any level at which it is set upon removal of a lift. This is controlled by a bar resting upon the top of the pile which automatically trips when it is lowered, causing the stack to raise to the previous level. The skid lift can be moved to any location by two men or slid along the floor with a mule.

The Walbert Skid Lift will lift up to 3000 lbs. of material. It will accommodate skids from 22 in. by 34 in. to 35 in. by 45 in. A larger size for max. skids measuring 44 in. by 58 in. is also available. Materials may be stacked as high as 83¾ in., including skid. Power is supplied by a ¼ h.p., 110 v., a.c. or d.c. electric motor. Specifications of the machine: width, 52½ in.; height, 91 in.; depth at base, 36 in.; and shipping weight, 950 lbs. More information may be obtained by mentioning PEE No. 243 in your request.

Spaceband Cleaner

THE Romyns spaceband cleaning machine, states Rich & McLean, Inc., will clean and lubricate a set of line-composing machine spacebands in 1 min. The machine is operated by hand wheel. It is stated by sponsor that the machine "mechanically inspects" upside-down

and bent spacebands by not permitting them to pass through the machine.

As the machine is operated, the spacebands are raised automatically by a cam to contact a heavy-gauge adjustable knife which removes excess type metal which may have accumulated on the spaceband without damaging its surface. After passing the knife, the spaceband is moved between a series of grooved blocks which further clean and at the same time lubricate the spaceband, and by telescopic action the spaceband sleeve is tripped to insure lubrication of the entire spaceband. An overhead automatic feed of graphite is positioned at the top of the machine which can be adjusted for quantity. Excess graphite drops into a container at the rear of the machine and may be reused. As each spaceband is ejected it slides under the preceding spaceband in the stack at the right side of the machine. The machine is 31 in. long, by 6½ in. by 10 in. and weighs 34 lbs.

Further information may be obtained by mentioning PEE No. 242 in your request.

Showing of Stradivarius

EARLY in January, art directors and production managers throughout the country received from Bauer Alphabets, Inc., a two color showing of Stradivarius type face. This showing features Stradivarius as a display face used in conjunction with some of Bauer's body text types. It also features the complete size range of Stradivarius. While this showing was mailed to art directors and production managers only, a copy may be obtained by mentioning PEE No. 236 when requesting it from *Printing Equipment Engineer*.

Electric Heat Bulletin

THE uses of electric heat in industry is the subject of an eight page bulletin recently issued by the General Electric Co. Among the uses described and illustrated in the bulletin is at the New York *World-Telegram & Sun* where a 10 T. capacity Automatic Autoplate employs a melting pot which uses 36 Calrod cast-in immersion heaters. According to the bulletin, five other Autoplates, equipped with melting pots using G-E heaters, make all the plates for the paper's seven daily editions. Copies of the bulletin may be obtained by mentioning PEE No. 249 in your request.

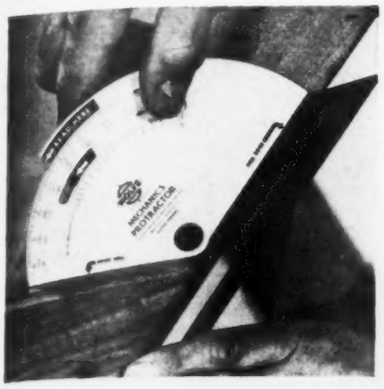
PMC Metal Base List

AN EIGHT page price list for the Sterling Toggle Hook and Base System has been issued by The Printing Machinery Co. The list includes separate prices of chases and base made of semi-steel and magnesium. Information in the booklet pertaining to magnesium accessories is printed in red, while all other details are in black ink. Four pages are devoted to a listing of various smaller letterpresses under which is listed the precision base equipment recommended for each press. A table in the booklet shows the standard form sizes available in the Sterling Toggle Base. Another list contains the parts and forms of the Sterling Toggle Hook and Base System. When writing for a copy of this price list, please mention PEE No. 234.

Numbering Machine Skip-Graph—A graph, developed by the Roberts Numbering Machine Co., to aid printers in setting up numbering machines for any type skip numbering operation is available without charge. Designated the Skip-Graph, it is designed to save time in planning skip operations and precludes the possibility of errors. It also indicates the stock of skip wheels recommended to meet needs in skip operation. The laminated graph is a 6 in. circular disk which shows the number and type of skip wheels needed and the number of machines required for each skip operation from 2 to 10. One side of the disk contains the requirements for forward skipping, the other side the requirements for backward skipping. *Printing Equipment Engineer* will gladly handle your requests for a Skip-Graph. Please mention PEE No. 247 when writing.

For Measuring Angles

A PROTRACTOR designed for on-the-job measuring of angles up to 180 deg. is made of Vinylite plastic rigid sheet which is claimed to be resistant to water, oil, grease and most chemicals. Available from Interstate Sales Co., the



instrument simultaneously obtains three readings with one setting: for an outside angle, for the adjacent inside angle, and for inches per foot against degrees.

Spread with edges squarely against sides of an obtuse joint, measurement of the adjacent acute angle (angle of bend or deflection) is read from the top row of calibration, while measurement of the obtuse angle itself is read simultaneously from the bottom row. Inches per foot of pitch is indicated by a second arrow on a separate scale which runs up to 24 in. per ft., for 63 deg. and 26 min. To measure certain inaccessible acute angles, a straight edge (illustration) may be used to extend one side of the angle. Where the protractor itself cannot be used, the angle may be taken with a carpenter's bevel and the angle of the bevel measured with the protractor, using the middle row of calibrations.

Readings to a fraction of a degree are facilitated by location of the calibrations at the extreme of the protractor's radius. The Vinylite sheet of which the instrument is made can be cleaned with a damp cloth. A lamination of Vinylite plastic prevents calibrations from wearing off. If more information is desired, please mention PEE No. 246 in your request.

Model 31 Linotype Bulletin

THE Model 31 Linotxpe is featured in a descriptive bulletin entitled *The Workhorse of the Composing Room* made available by Mergenthaler Linotype Co. The Model 31 is designed to produce a variety of type matter and, according to the sponsor, is particularly suited to text composition production. A feature of the single-distributor machine is its four-magazine capacity. A single turn of a handle permits the operator to shift from one magazine to another.

Maintenance of the Model 31, states MLCo., has been simplified and parts made accessible by the Linotype Swinging Keyboard which may be swung open for inspection or adjustment of its parts. Another feature of the machine is a number of safety mechanisms which help prevent damage to matrices and parts.

The bulletin provides descriptions of such Model 31 standard features as Micro-Therm Heat Control, Universal Precision Knife Block and Universal Ejector, together with descriptions of several Linotype production aids that are available as accessory equipment. The back page contains type specimens of four different magazine set-ups suggested for use on this model. These include type faces for periodical, newspaper, commercial and book composition. Please mention PEE No. 244 when writing *Printing Equipment Engineer* for a copy of this four page bulletin.

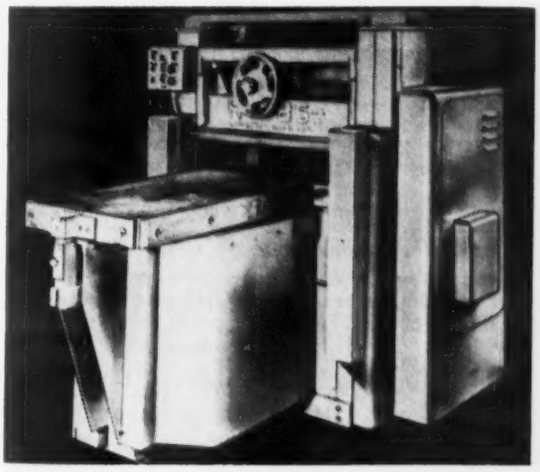
Color Guide—A Standard Color Guide, designed to help the printer and the buyer of printing in selecting colors, has been issued by Sigmund Ullman Co., Div. of Sun Chemical Corp. The pocket size specimen book contains 48 full strength colors printed in both solid and screen values. Also included are 20 tints made from transparent formulas. Sponsor states the tints are also made to satisfy optional variables such as opaque, semi-transparent, etc. Colors contained in the Color Guide are for both letter press and offset printing. Each color is available in various standard formulations. Copies are available by writing *Printing Equipment Engineer* and mentioning PEE No. 245 in your request.

Aniline Ink Pump — Designed for small aniline ink fountains is a pump that keeps aniline ink pigments in suspension by agitating the ink and circulating it from the pump to the fountain. Called the Graymills Q Series Pump, Graymills Corporation claims it maintains the ink at the proper viscosity for uniform ink distribution. Ink is added to the pump reservoir to increase the fountain capacity of the press. Sponsor states the pump reduces press stoppages, sudden changes in the level of ink and variations in the ink viscosity. The pump is designed for cleaning without tools and can be removed from the aluminum housing by loosening two wing units. In your request for further details, please mention PEE No. 249.

Uses of Record Stock

WAYS and means to purchase and use ledger papers and index cards for bookkeeping, accounting and other record keeping purposes are described in a booklet recently issued by Parsons Paper Co. The differences among the various grades of papers and card stocks are outlined in the booklet. A feature of the booklet is a table in which is shown how many handlings and how many years of usefulness may be expected of the various grades of cotton fiber paper. Parsons points out that old, worn rags, formerly used for many papers, tend to make the paper itself weaker. Methods of manufacture and methods of maintaining standards are among other information contained in the booklet. Copies are available. Please mention PEE No. 232 in your request.

Die Cutting Press — The Hobbs Autotronic Die Press is designed for die cutting various sizes and shapes of labels and envelopes, according to E. P. Lawson Co., Inc. Materials cut on the press include paper, chip board, rubber, plastics, textiles and almost any non-brittle form material. Max. height of material which can be die cut in one stroke is approx. 2½ in. The press is available in two sizes to accommodate max. sheets measuring 24 in. by 38 in. and 24 in. by 44 in. Features of the machine include automatic table motion and an electronic control system. High dies of approx. 2 in. to 2½ in. height are used, although steel rule dies with wood base mounting can be used in special applications. The press operates at 21 strokes per min. The photo electric unit of the machine acts as a safety while the operator's hands are beneath the cutting head, at which time a beam of light is interrupted which stops operation of the press. Further information may be obtained by mentioning PEE No. 238 when writing.



Fotosetter: A Western Reaction

By W. C. JONES*

**Composing Room Foreman, Economy Lithograph Co., Los Angeles. Reprinted from* Western Printer & Lithographer.

THIS month (November 1951) the Intertype Fotosetter which was installed last March in our composing room will be joined by a second machine, making the two the first and second such models to be put into use West of Chicago. Within several months we anticipate a third machine. Our eventual program calls for six more. Machine No. 1 now is job-ticketed through March, 1952.

We have two air-conditioned composing rooms, one for slug machines, the other for the Fotosetters we expect eventually to have, of identical size. On the slug side we have three new Intertype mixers, two Vandercook No. 4 proof presses, three saws, storage space for 4000 galleys, two 48-case type cabinets and miscellaneous equipment, arranged with wide aisles for maximum production efficiency. No additional equipment could possibly be added without hampering the ideal working conditions.

On the Fotosetter side, in the same area, we can install at least eight Fotosetters in addition to auxiliary equipment already there, including: ATF process camera, two Douthitt sinks, two Douthitt contact printers, drying racks, darkroom film-storage cabinets and enough stripping tables to handle production from the maximum anticipated number of machines. Besides this, we have space to store 250,000 forms, $8\frac{1}{2}$ in. by 11 in. size, or larger, in the form of films. (The process camera makes it possible for the department to produce books containing halftones, leaving the offset department only platemaking and presswork.)

It should be kept in mind that the slug machine was never designed to produce repro proofs, whereas the Fotosetter was designed expressly for this purpose.

Analyze this setup and you get the basic reasoning behind our entire program of photocomposition: Many additional, money-producing typesetting machines can be accommodated under the same approximate overhead. The elimination of lead in standing forms saves us thousands of dollars. Storage problems are eliminated. A simple filing system will keep thousands of standing forms within a few steps of production men.

As an illustration, just one contract our company recently won on the basis of the bid our one Fotosetter enabled us to submit, would have involved $24 thousand worth of standing metal, plus valuable storage space. On film, the forms for this job will be stored in a space about 2 ft. by 4 ft. in size.

I have heard it said, incidentally, that the one kind of copy on which a Fotosetter can make money is long copy—copy on which neither the measure nor the face changes, galley after galley. Frankly, our experience—so far, at least—is that chunk setting is just as profitable or more so. The explanation is simple enough: The automatic justifier on the machine, which of course speeds up the operator's output, and the fact that you can put on four magazines, containing four different faces—say a Garamond, a Bodoni, a sanserif and a stymie—and have eight different sizes available in each face, from 8 pt. to 36 pt. without a magazine change, making 32 in all.

Corrections and alterations take longer to make on the Fotosetter, we have found, than on slug machines—about one-third more time. Also, you can't install one of these machines and expect to sit back while customers rush in with jobs. We have found customers need selling and education on the machine's advantages. The quality of the repro proofs—actually, of course, they are simply contact photo prints—usually sells people, however. We find that forms can be enlarged several times without losing sharpness. Or type can be read clearly in the 4 pt. size. The operator has no control over the *quality* of his product; consequently, you can't get a bad repro except through faulty darkroom procedure. During the time we have had our machine, it went out of timing twice, due to misjudgment on the operator's part. The distributor has stopped fewer than 10 times since March. We have never had a breakdown.

Regarding personnel, find a good mixer operator and you have a good Fotosetter operator, with about four hours of concentrated teaching and a few days of supervision. His success as a money-maker will depend on the same qualities which make him a good or bad slug machine operator. We find our operators prefer running the Fotosetter

One of the questions we have been asked most often is "How do you like leasing the machine instead of owning it outright?" So far as we are concerned, we like it. We lease the machine at $3.6 thousand a year (the magazines of Fotomats are owned outright; they cost 40c each. The cost of magazine and Fotomats will vary from $1 thousand to $1.5 thousand, depending on how complete your font is. You get eight standard sizes in each font).

Tax-wise, for example: let's suppose you bought the machine outright for $36 thousand, a reasonable price considering the lease-cost of $3.6 thousand a year. Ordinarily, you would pay one-third down and carry the balance of $24 thousand at 6 %. Your yearly interest on $24 thousand would be $1.44 thousand. Under the lease, assuming you are in a 30% tax bracket, at least $1 thousand of your rental is tax deductible. Thus, by leasing the unit you are saving yearly interest of $1.44 thousand; on top of this, you get a tax deduction of $1 thousand. These sums total $2.44 thousand. Subtract this from your lease cost of $3.6 thousand and you find that the actual annual cost to you of leasing the unit is $1.16 thousand—and you have all your original capital.

No Obsolescence

This is not the chief reason we prefer the lease set-up, however. Let's suppose a situation in which we bought such a machine outright and, after a period of pioneering, built up a profitable business. Meanwhile, the engineers come up with a revolutionary improvement. Competitors, who had waited to see how we would make out, buy the improved machine, leaving us with obsolete model. Under the lease system, this can't happen. All improvements are installed on our machine at no cost to us. Our Fotosetter is always new.

Work for Hot Metal Machines for Long Time

We have been asked if we are eliminating our slug machine side? The fact that we replaced one of our three machines, a mixer, with a new machine last June; and are currently replacing the other two machines with new models should answer that. Obviously, there will be a good deal of work for hot metal machines for a long time to come.

Plans Mail Order Operation

One of our future plans for the Fotosetter calls for development of a program of out-of-town typesetting, working in the following manner: Copy can be airmailed from any section on an overnight basis. Negatives, positives, or positive repro proofs can be airmailed the following day. We feel this system will be advantageous to lithographers in small cities and towns with a press and platemaking equipment with or without a camera. Instead of the customary reproduction proof (or in addition to it), the lithographer will have a negative ready for platemaking.

We do not sell the Fotosetter's time on an hourly rate. All jobs are produced on a competitive basis with slug machines. We like the Fotosetter. Its success in any typesetting department is dependent on the initiative of the personnel in charge of its operation. There are just as many jobs that can be set on the Fotosetter as on slug machines.

Attractive Card

Holiday greetings went out again last month to customers and friends of the Ideal Roller & Mfg. Co., Inc., in the form of a Christmas card depicting a scene from an old fashioned barber shop with a print shop across the street. Printed in color, it is the twentieth in the series of cards designed especially for Ideal. Others have shown the print shop and small newspaper plant in all its various phases, how it looks to the men employed there, to the boss, the townspeople, even to the town pup.

Stereotype Casting Box Water Temperature Control

By Ellsworth L. Bailey*

*Supt. of Production, Alton (Ill.) Evening Telegraph.

LAST year, after attending a newspaper mechanical conference stereotype session, it occurred to me that some method of controlling the temperature of the water in the stereotype curved plate casting box circulating system could be devised. This was more clearly indicated after placing a thermometer on the drain from our Pony Autoplate machine. I found that no two men in the stereotype department cast plates at the same temperature. One man would cast plates with the water at 150 deg., another at 200 deg., and so on. Each particular man would not vary his manually set temperature more than a few degrees in casting plates for the day. He would be governed in adjusting the water valve by the appearance of the plate when it came out of the box.

After making some inquiry regarding heat control, it looked as if thermo-switches and solenoid valves could be made to control the water temperature. We installed two Alco valves and two thermo-switches in the water lines, one of each in the core and one of each in the back of the box.

Fig. 1.—Arrangement of water temperature regulating system in core of Pony Autoplate Stereotype Plate Casting Box as devised by Production Supt. Ellsworth Bailey in plant of the Alton (Ill.) *Evening Telegraph.*

From Fenwal, Inc., we ordered two thermo-switches. These are the cartridge type, No. 17001, inverse, Temp. range minus 100 deg. to 400 deg. F., sensitivity plus or minus 1 deg. F. These were installed in stainless steel thermo-wells No. 11201, hex. hd. with ¾ in. pipe thread.

From the Alco Valve Co. we secured two solenoid valves, type No. 5220, 115 v., 60 cy., 11 w., pressure 200 lbs.

We also purchased two ¾ in. strainers which we put in the line ahead of the valves.

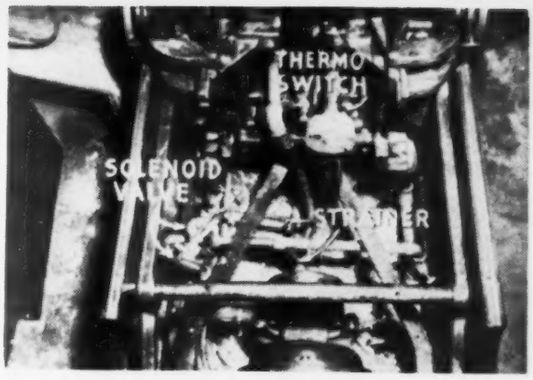


Fig. 2.—Arrangement of water temperature regulating system in Pony Autoplate Stereo Plate Casting Box Back. Arrangement of the thermo - switch, solenoid valve and strainer is self-explanatory.

The thermo-switch on the casting box back is adjusted at 112 deg. The one on the casting box core is set at 150 deg. These temperatures, however, may vary in different plants.

To date, these temperature regulating devices have been successful.

Gadgets

for better press operation

By CLINTON FISKE*

*Press-Stereo Supt., The Arkansas City (Kas.) Daily Traveler.

FROM time to time, the writer has devised different devices which are designed to improve operation of the Duplex Tubular 2:1 newspaper printing press in the plant of the *Daily Traveler*. These are illustrated in the accompanying diagrams and are discussed as follows:

Form Roller Bearing Insert

Some time ago I decided there was some way to fix a form roller bearing cap or a bearing lock that could be used so the pressure on the top form roller would be light, and also eliminate the skip or streak on the bottom of the pages. This bearing, cast from stereotype metal, holds the roller shaft down in the socket snugly, as shown in the diagram in Fig. 1. If the rollers are true on the face and the plates are good, I can run a roller tread of 3/16 in. to ¼ in. and never have a skip on the print. In the last six years I have only had to put a 0.003 in. piece of paper between the insert bearing and cap to take up for wear. The two screws in the side of the cast cap (one of which is shown at *1*) hold the stereotype metal insert bearing from falling out when removing the bearing cap.

Foot Pedal Drops Core

The foot pedal which, when depressed, drops the core on our stereotype tubular casting box, is made of a 3 in. piece of strap iron, 21 in. long. It is mounted inside the left side of the casting box

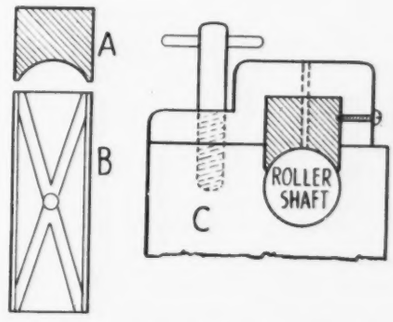


Fig. 1.—Form roller insert in bearing cap. At *A* is shown end view of cap insert; *B* is inside view of insert with oil holes and grooves; at *C* is end view of form roller bearing assembly. At *1* is shown one of two screws which hold insert in place when removing the bearing cap.

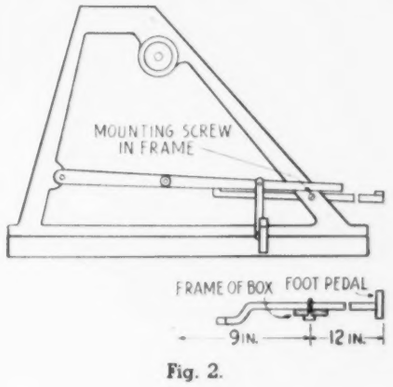


Fig. 2.

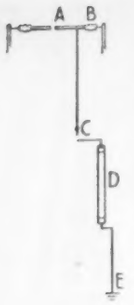


Fig. 3.—Static Collector applied to Duplex Tubular 2:1 press. Parts are identified as follows: *A* is the spring antenna; *B* are insulators; *C* is the spark gap; *D* is a 15 w. fluorescent tube, and *E* is the ground.

frame. It is bent with an offsetted section and is mounted as shown in Fig. 2 under the arm of the lift lever. It is mounted with a ½ in. hex. hd. screw on the frame. It saves one's back by eliminating the manual upward pull to drop the core.

Static Collector

Static on a rotary press is first started under the impression of printing during what we call the "static season." Before making a static collector, shown diagrammatically in Fig. 3, if I did not ground myself on the press before testing the webs for tension, a spark 1 in. to 2 in. long would jump from myself to the press. I put the antennas about 2 in. from the webs on the leads from the units to the folder, one on each web. I used door coil springs for the antennas because they keep themselves pulled tight. The lead from the antennas to the spark gap or acting air condenser must not have a loop in it because it will not totally drain off the static. I use one 15 w. fluorescent tube to burn off static from the four webs on my press. For the ground, I drove a 6 ft. pipe down through the press pit floor and grounded the press to it, as well as the bottom of the fluorescent tube. We run color and have no trouble at all. We average about one web break a month in "static season" now.

Double Page Spread Non-Slip Lock Keys

These keys (made from cold rolled steel) as shown in Fig. 4, are used in the bottom or the last slot above the bar on the plate cylinder on our Duplex Tubular Press, when double page spreads are to be run. The one on the gear end of the cylinder will set back in the collar of the plate stop. When the plates are positioned in register, take a No. 28 twist drill and drill a hole with a No. 28 twist drill in the end of the plate through the hole in the key. Then insert an 8 x 32 rnd. hd. steel screw in the threaded hole in the key. The soft stereotype metal will permit the screw to thread itself when turned up with a screwdriver. The screw for the plate on the other end of the plate cylinder is inserted in the same manner.

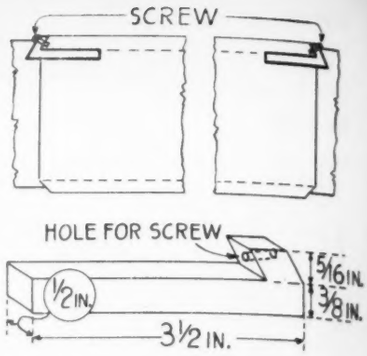


Fig. 4.

Collar Mounting for Motor Pinion

THE driving pinions on line-casting machine Emerson motors in the composing room of the Ada (Okla.) *Evening News* are fortified against looseness and short life in cases where shaft and keyway have become worn. R. D. Fisher, Machinist on that paper, does this by means of two collars, four pins and Allen set screws. Mr. Fisher explains that in applying the collars, one on either side of the pinion, he discards the key which originally prevented the pinion slipping around the motor shaft. The collar on either side of the pinion are bored so as to be applied with a tapping fit on the shaft. With four steel pins applied through collars and pinion together with the collars being fastened securely by Allen set screws there is no possibility of the pinion becoming loose. In addition, noisy pinions are eliminated when fastened to the shaft by this device.

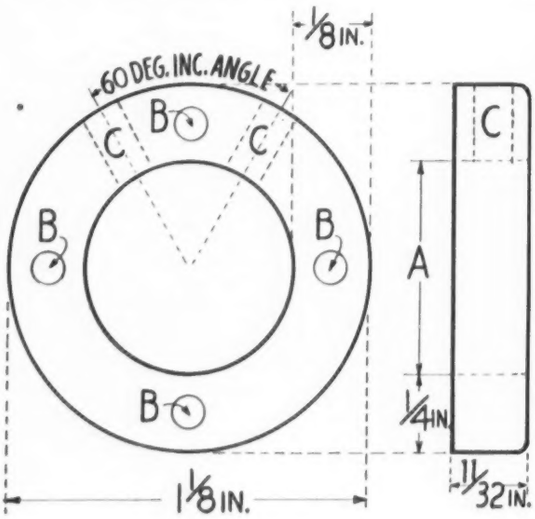
Mr. Fisher related he has not found a very successful way of tightening the pinion key once the keyway has become badly worn. He has also tried building up the armature shaft where the motor pinion is positioned but the built-up metal being soft, it did not last very long.

In making the collars (two for each pinion) they were turned from bronze to a diameter of 1⅛ in. (Fig. 1). Then the center was drilled and reamed to a diameter of 0.624 in. (The diameter of the armature shaft on the Emerson motor is ⅝ in. or 0.625 in.) This diameter provides a tapping fit of the collar on the armature shaft.

Next the collar was drilled with four holes at an angle of 90 deg. to each other through the side of the collar using a 3/32 in. drill. (The piece of bronze in the lathe was approx. 2½ in. long.) Next, two collars were cut off, 11/32 in. wide. The 3/32 in. holes were countersunk slightly on one side of each collar only.

The next operation (see accompanying Fig. 1 diagram) is to drill and tap two holes through the vertical section of the collar at an included angle of approx. 60 deg., using a ¼ by 24 tap and inserting an Allen set screw in each hole.

Four holes, 3/32 in. diam. are now drilled sidewise through the motor pinion in alignment with the four holes in each of the collars. Steel welding rod is used to pin the collars to the motor pinion. To secure alignment, a short section of drill rod the length of the pinion and collar assembly can be used to locate the pin holes in the motor pinion. The pin ends may be burred over slightly to spread into the countersunk surface of the pin holes. The pinion and collar assembly may now be tapped to position on the armature shaft and the Allen set screws tightened permanently.



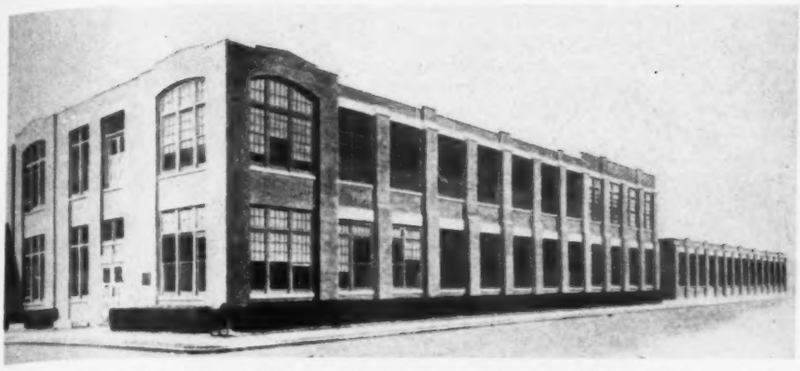
Fog. 1.—In this diagram are shown end and side views of bronze collar, one of which is applied to each side of line-composing machine Emerson motor driving pinion for permanent alignment and tight position. The plan for mounting motor pinions on worn driving shafts with worn keyways was supplied by R. D. Fisher, Machinist, Ada (Okla.) *Evening News*.

In the diagram, the bronze collar is 1⅛ in. diam. Collar width is 11/32 in. Bore (A) is 0.624 in. Pin holes (B) are are 3/32 in. diam. Allen set screws (C) are positioned apart 60 deg. included angle.

Now Deals Direct With Customer

Until recently, Linotype Parts Co., Inc., has been represented in the New York metropolitan area by American Printing Machinery Co., Inc. Now, however, all orders are billed and shipped direct from Linotype Parts Co., Inc., South Hackensack, N. J. Orders will be shipped the same day as received. Linotype Parts Co. announced: The highly specialized knowledge that only the manufacturer can impart, will be made available more readily to customers in the nearby territory by dealing directly with the manufacturer's trained salesmen.

Joseph F. Burbige will cover Manhattan as direct representative and other salesmen will be added to cover the rest of the metropolitan territory in the near future.



Graeber Moves Plant and Offices—The Graeber Stringing & Wiring Machine Co. has moved into a new plant and main offices (shown above) at 375 Eleventh Ave., Patterson, N. J. Formerly the firm was located at 105 E. Elm St., Conshohocken, Pa. The new location is the same as that of the parent company, the New Era Mfg. Co. An addition to the present New Era company's plant has been constructed to house the Graeber operation. Executive and sales personnel under the direction of Vice President and Sales Mgr. Joseph E. Morris, and General Mgr. Kenneth J. Conrad, respectively, will make their headquarters at the Patterson address. Raymond Fleming remains in the position of Development Engineer which he has held since the death of the late Frank Graeber.

The ABC of OFFSET

For Letterpress Printers

By George Jos. Lenzer

Series Two

I—POST-CAMERA OPERATIONS

IF WE limit our thinking to what has been presented in Series One, we can be led to believe that camera operations, specific photographic emulsions and color filters are all that are required for high quality reproduction for the offset processes. We may be led to believe that no subsequent work is required, manual or otherwise.

Do not be misled. Post-camera operations are essential.

Millions of dollars have been spent and many millions more will be expended to eliminate post-camera operations, which for some unknown reason are considered to be an unnecessary evil by many lithographic plant owners and operators.

The idea seems to persist (that once a sketch is made, or a photograph or color transparency is supplied) all that is required is to re-photograph the original on the proper photographic plate or film, at the correct size and dimension through specific color filters—and the job is done and ready for the plate maker.

If this Utopian idea were a reality, production costs could be materially reduced and the plant operator would be extremely happy.

Since post-camera operations will continue to be a major part of photomechanical reproduction, let us accept the fact and learn something about them—Tonal and Color correction, Layout and Stripping.

Tonal Corrections

Question: Why is Tonal Correction necessary?

Tonal correction in halftone reproduction becomes a necessary operation because of imperfections in color pigments, eccentricities in light reflection and transmission, and variables effected by photographic manipulation and processing. In the light of these imperfections, it is evident that a true, absolute and correctly balanced negative is not always attainable. Therefore, Tonal correction becomes an essential post-camera operation.

Example: In order to reduce costs, some plants require reproductions to be made on Orthochromatic films only and stipulate or specify the utilization of the Direct Process of Halftone reproduction.

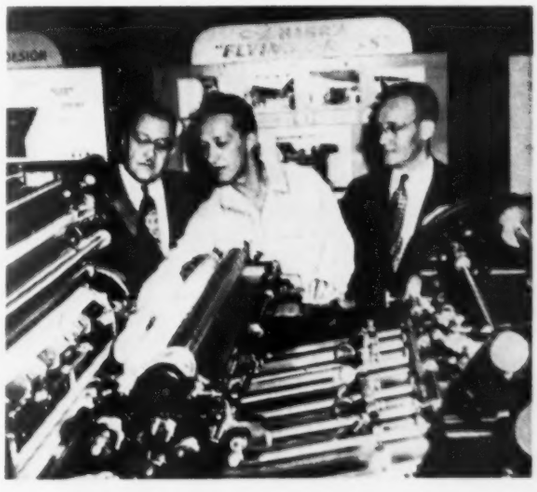
The motivating idea behind this procedure is that an albumen printing plate can be made from the halftone film by direct exposure in the vacuum frame. Because this procedure can be followed to a certain extent in Black and White reproduction, is no reason to assume that the same thing can be done with all halftone reproductions. Certain amounts of corrective manipulation, Chemical intensification or reduction of specific areas, opaqueing and masking are necessary if a nearly true and correct tonal balance is desired.

In color reproduction, it must be remembered that the use of only one type of photographic emulsion for all color separation negatives, makes it almost impossible to obtain a true rendition in tones of grey, a silver image of the colored original. Most often, the only difference between designated separation negatives such as the Yellow, Red, Blue and Black, is the halftone screen angle. Otherwise, all images are practically identical in tonal quality.

When, upon inspection, it is seen that necessary tonal balance does not exist, it is evident that correction is a definite requirement. If the correction is not made on the negative itself, then the correction must be made on the printing plate if a reasonably good reproduction is to be obtained.

There are several ways to inspect a halftone negative for tonal balance and reproductive quality. Each manner of inspection is effected through the understanding of one basic fact—that the

(Continued on Page 56)



H-S Open House—Guests at the recent open house at the Chicago offices of Harris-Seybold Co. included Edward Miller (right) Superintendent of the Columbian Lithographing Co. Chicago. The register mechanism of the Model 128A Harris 21 in. by 28 in. offset press is being explained here by Ralph Pufahl (center), H-S Service Representative, while Fred H. Coon, Chicago Sales Representative, looks on. Similar open houses are being held by Harris-Seybold in seven other major U.S. cities.

EXECUTIVE Cs

Merle Grounds has succeeded C. F. (Buck) Harbaugh as Composing Room Foreman of the Portland (Ore.) *Oregonian*. Grounds came to the *Oregonian* from the old Portland *News-Telegram* in 1939 and has held the position of night foreman. Harbaugh, who resigned as composing room foreman, has returned as a regular in the floor department where he has approx. 44 years seniority. Dean White has been named night foreman.

Adrian B. Kaiser, who has been associated with the Toledo (O.) *Blade* since 1919, was recently appointed Mechanical Supt. of that newspaper. He succeeds the late Fred Winch. Born in New Philadelphia, O., Kaiser started his newspaper career as a composing room apprentice on the *Blade*. In 1943, he was named composing room foreman and five years later he was promoted to superintendent of the newspaper's day and night typographical operations. Two years ago, Kaiser directed the remodeling and modernization of the *Blade's* composing room. He is a member of Local 63 of the Intl. Typographical Union.

Officers of The Goss Printing Press Co. elected at a recent meeting of the board of directors are as follows: R. C. Corlett, President; J. A. Riggs, Executive Vice President; K. J. Williams, Treasurer; M. E. Oliphant, Secretary; G. B. Wise, Asst. Secretary; C. S. Reilly, Vice President in Charge of Sales; C. S. Crafts, Vice President in Charge of Engineering; A. O. Holmberg, Vice President in Charge of Manufacturing; and W. T. Goss, Vice President.

Raymond W. McNulty has been appointed Asst. Production Mgr. of Newsday, Inc., Garden City, Long Island, N. Y. McNulty formerly served as stereotype superintendent of Newsday. In his new position, he will be in charge of interdepartmental affairs of the mechanical departments.

John Jay Hopkins, President of Electric Boat Co., has announced that Lawrence B. Richardson, Rear Admiral, USN (Ret.) has been elected a Director and Senior Vice President of the company, a newly created office.

The Board of Directors of the Wood Newspaper Machinery Corp. has announced the election of John J. (Ted) Shea as President to succeed the late Oscar C. Roesen. Shea has resigned as assistant to the general manager and general production director of the Hearst Newspapers to assume his new duties. All executive officers of the Wood organization will continue in their present capacities, according to the announcement. Shea started his newspaper career with the Worcester (Mass.) *Telegram* and *Gazette* in 1916. He joined the Hearst organization in 1939 as mechanical superintendent. He has served as a member of the Mechanical Committee of the American Newspaper Publishers Assoc. for 10 years and later as a member of the ANPA Research Committee. In an interview, Shea stated that he intends to continue the present Wood corporation policy of providing improved equipment and service for the newspaper industry, including expansion of existing manufacturing facilities.

A dinner in honor of Frederick C. Merrick, President of A. S. Gilman, Inc., Cleveland, was held recently by employees of the company in recognition of Mr. Merrick's fiftieth anniversary with the

firm. He is shown above with Mrs. Merrick who was also honored for her services during the depression years when she backed the company with her personal fortune. Diamond-studded 50 year service pins were presented to both on the occasion by Fred W. Kiessling, Secretary of the firm. Merrick began his career with the A. S. Gilman Printing Co. on October 15, 1901. In 1906, he was appointed treasurer and in 1917 became vice president. He assumed the presidency of the firm in October, 1928. He is a graduate of Ohio Wesleyan University in the class of 1897. A 50 year pin was also presented Samuel C. Bennett. A number of other Gilman employees were honored for their years of service with the company.

Julian J. Eberle has been appointed Production Engineer for the Cox Newspapers according to an announcement by James M. Cox, jr. Eberle will be concerned with mechanical operations on the Atlanta (Ga.) *Journal* and Ohio newspapers in the Cox group. He will make his headquarters at the Miami (Fla.) *Daily News*. He formerly was associated with the Milwaukee (Wis.) *Journal* as mechanical engineer and assistant to the vice president and production manager. A graduate of Marquette University, Eberle was twice elected to the board of directors of The Journal Co. He is the author of various technical articles which have appeared in *Printing Equipment Engineer* and other trade publications and has lectured on different topics of newspaper operation. He is a member of the Engineers Society of Milwaukee and served as president of the board of directors of the Marquette University College of Engineering Alumni Assoc.

R. J. (Bob) Sweeney has joined the sales force of The M. L. Abrams Co. Mr. Sweeney formerly was with Chas. Eneu Johnson Co., Inc., traveling out of the Cleveland office for the past six years. Previous to this, he spent 22 years as a pressman and operating a printing plant in Vermont. For the present Mr. Sweeney will travel in Central Ohio, Western Pennsylvania and New York, with headquarters at the home office in Cleveland.

The Timken Roller Bearing Co. recently announced the appointment of R. G. Wingerter as Assistant General Mgr. and of J. R. Splitstone as District Mgr. of its Automotive Sales Div. Both men will continue to make their headquarters at the company's general automotive sales division offices at 3107 West Grand Blvd., Detroit 2, Mich.

Alvin F. Friederich has been appointed Sales Director of Parish Process Service, Indianapolis, silk screen printers. Friederich formerly served as vice president of Process Color Plate Co. He was also Fifth District Representative of the Intl. Assoc. of Printing House Craftsmen. The appointment of Lou Spivey as Art Director was also announced by the Parish firm. Friederich's new business address in Indianapolis is 817 W. 30th St.

GET OFF THE HOOK!

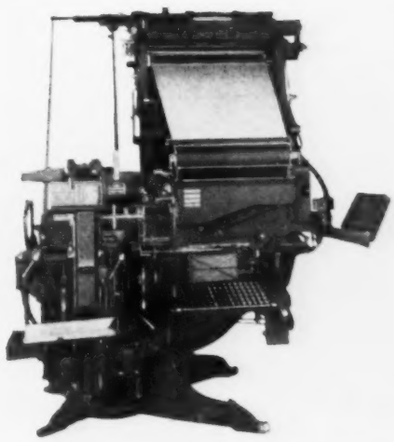
EVEN FOODSTORE-DAY ADVERTISING IS ROUTINE ON ONE OF THE NEW LINOTYPE AD MACHINES!

Publishers who have installed one of the newly-engineered Model 35 or 36 Linotype Wide Range Mixers are unanimous . . . these *new* Linotypes set more ad type, in less time, and with less effort, than any other machines in the world!

No wonder users are satisfied! There's full capacity in these new Linotypes. Not just 2 wide main magazines, but 4 on the Model 35 and 36! You *keyboard* just about everything . . . mix text and big display without leaving the keyboard!

And the tested innovations on these new Linotype ad machines make them simple to operate and easier to keep in top shape. Conveniently located mixing controls respond to a flip of the wrist. All parts are more accessible; swinging rod frame eliminates intermediate mechanisms . . . the simple shift control has no motor to service, no adjustments to make . . . keyboard swings out. Machine and matrices are both protected by the brand new Electromatic Safety System.

So why not get off the hook? Why not turn those marginal jobs into profit-makers? Your Linotype Production Engineer will be glad to tell you how. Mergenthaler Linotype Company, 29 Ryerson Street, Brooklyn 5, N. Y. In Canada, Canadian Linotype, Limited, Toronto.



LEADERSHIP THROUGH RESEARCH

• LINOTYPE •

Set in Linotype Erbar, Spartan and Times Roman Families

Huebner Co. to Handle and License Patents

IN THE latter part of December 1951, announcement was made of the forming of The Huebner Co. The company was incorporated under the laws of Ohio as a wholly-owned subsidiary of The Standard Register Co., Dayton, Ohio, a comparatively young company (Est. 1912) is one of the top concerns in the business forms industry.

Officers of the new corporation are K. P. Morse of Dayton, President (also executive Vice President and General Manager for Standard Register); W. C. Huebner, Vice President; and L. J. Ertel of Dayton, Secretary-Treasurer. Members of the Board of Directors will be M. A. Spayd, Standard Register President; W. B. Turner, Dayton attorney; George Haight, Chicago patent attorney, Morse and Huebner.

The new corporation was formed, said its new President, for the purpose of licensing and developing patents originating with Huebner. The new company already has acquired patents and patent applications relating to the Graphic Arts and allied fields.

One of the basic principles involved in the Huebner patents is that of printing by electrical force, rather than pressure methods currently being used.

The same basic principles involved in electronographic printing, it is stated in the announcement, can be applied to various other reproductive processes, as well as other products involved in the field generally referred to as Graphic Arts. Present patents available for licensing deal with paper making, coating and tinting; paper printing; plastic and textile printing; carbon paper manufacturing and duplicating processes.

Huebner pioneered development of color photo-lithography, and the original image photo-composed press plate for offset printing. Huebner has been granted approx. 200 United States and 250 foreign patents covering Graphic Arts inventions.

Two men working toward developments revolutionary to the Graphic Arts, are William C. Huebner (left) and K. P. Morse, shown examining a rubber plate assembly mounted on a shell or saddle for affixing to a press cylinder. They are Vice President and President, respectively, of the newly-formed Huebner Co., which will issue licenses under Huebner patents for various electronic improvements in the Graphic Arts as they now are known.

Charles I. Mansur, 64, formerly Vice President in Charge of Sales of the Miehle Printing Press & Mfg. Co., died November 21 in Tucson, Ariz., where he had lived since his retirement in 1945. He is survived by his wife, Kathleen Bergen Mansur, and three sons, Morton, Charles and David. A native of Coffeyville, Kan., Mr. Mansur first joined the Miehle company in 1910. During World War I, he served as a Captain in the Army Chemical Warfare Service.

Arthur Dultgen has retired as Rotogravure Supt. of the New York *News*. He has been succeeded by J. E. (Ed) Hazel, former vice president in charge of manufacturing for the Art Gravure Corp., according to an announcement by P. B. Stephens, Business Mgr. of the *News*. After a vacation in Florida, Dultgen plans to resume his laboratory work on behalf of the *News* through which 17 years ago he developed a halftone reproduction method used in gravure cylinder making known as the News-Dultgen process. He started his career 45 years ago and has been with the *News* since 1936. By use of his halftone process at the *News* rotogravure plant, he was able to change the plant's production of regular sepia gravure pages and an occasional color page to a steady output of attractive four-color and monotone pages. Hazel, the new Rotogravure Supt., has spent more than 30 years in the rotogravure industry. He became associated with Art Gravure Corp. in 1920 and held positions as purchasing agent, Chicago plant manager, manager of the firm's main plant, and sales manager.

Walter G. Engler, a sales engineer of the Gifford - Wood Co. for nearly 25 years, has assumed the duties of General Sales Mgr. of the company, according to an announcement by Orlan A. Johnson, President. The position has been vacant since the recent death of William E. Herb. Engler held a number of sales executive positions with Gifford-Wood before taking charge of mid-western territory in 1942 with offices in Chicago. In 1947 he managed the company's eastern office in New York. Engler will make his headquarters in Hudson, N. Y., location of Gifford-Wood's main office.

H. F. Hey was elected Vice President of Sun Chemical Corp. at a recent meeting of the Board of Directors. Hey joined the Sun Chemical organization in 1948 as industrial relations manager and later was assigned as general manager of the Electro-Technical Products Div. He will continue his duties in the latter named capacity.

William P. Baines, 53, Printing and Printing Service Foreman of the Ohio Boxboard Co., died on December 15 at his home, 120 N. Third St., Rittman, O., following a three month illness. Mr. Baines had been associated with the Ohio Boxboard firm since July 1950. Previous to that time he was general supervisor of the National Folding Box Co., New Haven, Conn. He had also been with the Curtis Publishing Co., Philadelphia; Bartgis Brothers, Ilchester, Md.; and the Hilscher Paper Box Co., Kingston, Pa.

Original members of the Board of Directors of the National Printing Ink Research Institute were feted at a banquet held during a recent meeting at Lehigh University. Remarks were made by Dr. Harvey A. Neville, Director of the Lehigh Institute of Research. Dr. Martin D. Whitaker, President of the University, presented pictures of the first Board to the following members of that group: H. Howard Flint, Howard Flint Ink Co.; Engelbert Smith, Crescent Ink and Color Co.; G. Stuart Braznell, Braznell Co.; and Martin Driscoll, Martin Driscoll and Co. Anthony J. Math, Sinclair and Valentine Co., was honored as president of the first Board.

Atlanta (Ga.) Craftsman Marshall H. Lane, Art Director of the Coca-Cola Co. was recently elected President of the Art Directors Club of Atlanta, Inc. Marshall was in the hospital in Chicago when the election took place. Other Atlanta Craftsmen who are also members of the Art Directors Club are Richard N. McArthur, typographic designer, Kenneth Higgins, Harald Torgesen and Sol Malkoff.

"We flat 'em and mat 'em!"

***That's what Mechanical Superintendent Asa H. Pauley says about the simplicity of handling* Scan-a-gravings *in the plant of the* Schenectady Gazette.**

Shop men at the *Schenectady* (N. Y.) *Gazette* take Scan-a-gravings for granted as the result of a smooth-working routine for handling them. The run—approaching 40,000—makes it necessary to mat everything that goes on the presses. While forms are being made up, the paper's Fairchild Scan-a-graver is busy turning out plastic halftones. These are mounted on flats of type metal. Then the flats are sawed apart and the Scan-a-gravings dropped into place on the forms. After that, it's a simple matter of matting and stereotyping.

"For a long time now," Asa H. Pauley, mechanical superintendent, says, "we've handled Scan-a-gravings like any halftone. Slap 'em in the form and away they go. No fuss, no muss, no bother." These pictures show how the *Gazette* does it.

Asa H. Pauley, mechanical superintendent (left), checks Steve Nolte as he saws apart a flat on which are mounted several Scan-a-gravings. These flats are made of type metal and are shaved so that their height is very precise.

Plastic halftones are mounted on type-metal flats by Photographer Sidney Brown, using double-faced Scotch tape. The flats are supplied by the composing room in various column widths, and Scan-a-gravings are made to corresponding sizes.

Dropping a Scan-a-graving in place in a form is Printer Pete Attansio with Mr. Pauley standing by to see to it that forms keep moving along. Photographs taken with Scan-a-gravings in mind result in unusually high-quality reproduction.

With the casting of stereos, production is the same as any daily newspaper. By matting, the *Gazette* assures uniform reproduction throughout the run. Scan-a-gravings are tied in with the whole process just like any other type of engraving.

• *Fairchild customer service representatives are located from coast to coast. One of them has been assigned to your area and will be glad to visit you at your convenience. If you'd like to arrange for a call, or if you want more information on the Scan-a-graver, write today to Fairchild Camera and Instrument Corporation, 88-06 Van Wyck Boulevard, Jamaica 1, N. Y., Dept. 100-30E.*

FAIRCHILD
SCAN-A-GRAVER

Patents

For The GRAPHIC ARTS

Covering patents issued November 6, November 13, November 20 and November 27.

All new patents for the Graphic Arts are reported exclusively for Printing Equipment Engineer by Invention, Inc., an industrial patent research organization in Washington, D. C. Invention, Inc., presently has the only staff in the country that examines, in the U. S. Patent Office, the complete printed copy, drawing by drawing and page by page, every one of the several hundred new patents issued each week. Printing Equipment Engineer is the only trade publication in its field offering a report based on this complete coverage. For copies of the patents listed here specify the patent numbers and send 25c for each separate patent, or 10c for each trade mark or design patent (stamps not accepted) to the Commissioner of Patents, Washington, D. C.

Composing Room Equipment

2,574,005. MAGAZINE SHIFTING SAFETY DEVICE. A typographical distributing machine equipped with a series of matrix magazines and a shift frame movable vertically to bring a selected magazine into use, comprises the combination of manually controlled means for operating the shift frame, a channel entrance for conducting matrices in course of distribution into a selected magazine, locking means movable into and out of engagement with the shift frame and a safety device to prevent disengagement of the locking means from the shift frame. Invented by Archer O. Albin, Lynbrook, N. Y. Assigned to Mergenthaler Linotype Co., a corporation of New York. Application January 3, 1946. 7 claims.

2,574,901. PRINTER'S SAWING AND TRIMMING MACHINE. A horizontal work support table has a motor supported by and beneath the table. The structure which includes a vertical wall depending from the table comprises bearing parts which have faces that engage in a plane normal to the pivotal axis of the support arm with annular interengaging portions holding them against shifting in a radial direction, and the means for yieldingly maintaining the parts in operative relation consists of a bar disposed across the support arm diametrically of the annular bearing part thereof. The motor shaft stops short of the side of the arm remote from the wall, and compression means betwween the bar and arm act to press the bearing part of the arm against the bearing part of the structure. Invented by Joseph Adrian, Cleveland, O. Assigned to Super Speed Printing Machinery, Inc., Cleveland, O. Application March 5, 1947. 3 claims.

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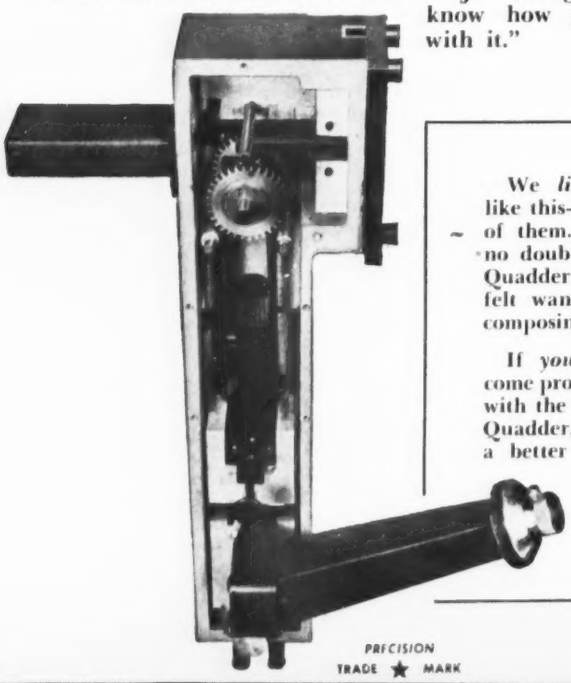
That's how the STAR Quadder looks to Mr. Frederick K. Weiss, Weiss Printing House, Philadelphia, Pa. Mr. Weiss writes:

"It is now about 15 months since we installed the STAR Quadder on our Linotype machine, and I believe it to be the best investment we have ever made. Just thought you'd like to know how pleased we are with it."



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Feeding, Folding, Delivery

2,574,002. WEB HANDLING MECHANISM is for a multi-color web printing press comprising a plurality of printing couples each including a printing cylinder and an impression cylinder. A web transfer drum is adapted to bear against each of a pair of successive impression cylinders. A carrier for one of the impression cylinders is operable to carry the impression cylinder bodily toward and from the cooperative printing cylinder. Means are provided for supporting an associated web transfer drum from the carrier for movement in unison with the impression cylinder, and means for adjusting the relation to the impression cylinder and to the neighboring parallel cylinder. Invented by Adolph Weiss, Brooklyn, N. Y. Assigned to Interchemical Corp., New York, N. Y. Application December 3, 1945. 11 claims.

2,576,013. SHEET STACKING APPARATUS comprises reverse means to receive and feed a moving sheet in reverse direction relative to the initial direction of motion of the sheet, and endless carrier means to bodily move the reverse means at a uniform speed to cause the reverse means to travel in the direction of the initially received moving sheet, whereby the velocity of the sheet is reduced to the difference between the feed speed of the reverse means and the speed of the carrier means. Invented by Lawrence H. Haskin, jr., Bloomfield, N. J. Assigned to Champlain Co., Inc., Bloomfield, N. J. Application October 15, 1949. 34 claims.

2,576,421. SHEET HANDLING MECHANISM FOR BED AND CYLINDER PRINTING MACHINES provides mechanism for feeding, registering and delivering a sheet and has an impression cylinder which is movable into and out of position contact with a printing surface wherein the feeding, registering and delivery mechanism are mounted on a support which is moved in accordance with movement of the impression cylinder, the mechanism continuing in operation irrespective of the position of the impression cylinder

and support. Means for operating the feeding and registering mechanisms may be carried by the impression cylinder and may comprise cams which operate the mechanism through intermediate connections carried by the support. Invented by Fred Spence, Sale, England. Assigned to the Linotype and Machinery Ltd., London, England. Application November 30, 1946; in Great Britain November 19, 1945. 10 claims.

2,576,529. WEB REGISTRATION DEVICE is applied to color printing in a plurality of steps. Web carries a light modulating index in predetermined areas. A beam of light is focused on the path of the index area and is reflected onto a photoelectric cell. Signal produced by the cell is applied to an amplifier circuit of a type adapted to drive a correction motor which is connected through a differential to the driving means for the feed roller and introduces a lead or lag in the roller drive which is determined by the error signals from the cell. Invented by H. F. McKenney, Flushing, and William H. Newell, New York, N. Y. Assigned to The Sperry Corporation, corporation of Delaware. Application November 22, 1946. 1 claim.

2,576,882. DEVICE FOR CONVEYING PAPER AND SIMILAR SUBSTANCES is disclosed in which sheets of paper are held on the conveyor solely by electrostatic force. It comprises a conveyor belt member of electrically insulating material having a first exposed surface for receiving the sheets on one side of the conveyor and a second surface on an opposite side of the conveyor member. Means are included to apply the sheets to be conveyed onto the first surface. There is an electrically conducting coating on a portion of the second surface. Electrostatic charges are applied to exposed surface of the sheets and to the coating. Invented by Pieter Koole, Louis R. Bourgonjon, and Hendrick de Lange, Eindhoven, Netherlands. Assigned to the Hartford National Bank & Trust Co., Hartford, Conn., as trustee. Application December 4, 1947; in the Netherlands September 4, 1946. 5 claims.

Plate Making

2,574,258. LIGHT-SENSITIVE COMPOSITIONS AND PLATES FOR PHOTOLITHOGRAPHY. The composition is made up of an aqueous vehicle, a water-soluble hexavalent chromium compound of the group consisting of chromates and dichromates, a liquid to semi-liquid, unsaturated, organic, oily to fatty material capable of reacting with bichromate in the presence of actinic light to form a coherent solid film and a water-soluble phosphate. The oily material may be dehydrated castor oil. A film forming gum, such as guar gum, may be added. The plate claimed comprises a metal or paper base and a partial coating thereon in the form of a configuration. The coating may be dried an insoluble residue of the composition defined above. Invented by Frederick H. Frost, Portland, and Frederick E. Brinnick, Westbrook, Me. Assigned to S. D. Warren Co., Boston, Mass. Application April 26, 1948. 10 claims.

2,574,392. ROLL FILM CAMERA ATTACHMENT is for copying cameras of the type used in the graphic arts for the preparation of printing plates. A motor driven web film support is adapted to progressively thread from a supply roll along a vacuum platen to a rewind roll. A controller holds the web film stationary during an exposure and operates a vacuum pump during the exposure period when the film is stationary. A tape support mechanism is in the controller for advancing an indicating and switching control tape across the face of same. An electrical driving means is controlled by movement of a film web in the web support to advance an indicating and switching control tape in the tape mechanism in accordance with movement of film in film support. Invented by William C. Huebner, New York, N. Y. Unassigned. Application August 20, 1948. 13 claims.

2,575,546. MACHINE FOR PRODUCING SCREENED RELIEF PATTERN PLATES, or photoengravings, produces them in one-half the usual time. The machine includes a first cylinder for supporting a plate, a second cylinder for supporting an image sheet, and means for rotating the cylinders synchronously. A first reciprocable carriage includes an electro-optical pickup system disposed for scanning an image sheet on the cylinder, and a second reciprocable carriage includes a plate-deforming tool disposed for scanning a plate on first cylinder. Means responsive to the output of pick-up system actuate the tool. Carriages are synchronously reciprocated and an electrical screen generator including a rotor is driven synchronously with the cylinders. Invented by John A. Boyajean,

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AMERICAN STEEL CHASE COMPANY: Newspaper Chases, Make-Up Trucks.

WESEL MANUFACTURING COMPANY: Electric Proof Presses, Flat Router.

EASTERN FOR ECONOMY

EASTERN NEWSPAPER SUPPLY, INC.
9603 Northern Boulevard, Corona, L. I., New York

jr., Upper Montclair, N. J. Assigned to Fairchild Camera & Instrument Corp., corporation of Delaware. Application July 24, 1948. 27 claims.

2,576,088. GRAINING MACHINE FOR ZINC OFFSET-PRINTING PLATES is freely suspended from above, obviating costly supports and anchorages. It includes a rectangular graining box which is suspended by cables trained over a sheave and connected to a hoist so as to move the box between level and tilted positions. In the tilted position, the balls used for graining the plates are rolled into a receiving trough so as to avoid marring the plate. Gyrating mechanism is also attached to the box. Invented by W. F. Horst, Lubeck, Schleswig-Holstein, Germany. Unassigned. Application September 14, 1950. 6 claims.

2,576,218. SHEET MATERIAL CONVEYING AND SUPPORTING MEANS is for conveying or heat-processing lithographed plates. The carrier includes a sheet carrier frame having side members attachable to the conveyor. Carrier frame includes diagonally extending cross arms connected at their intermediate portions and having their ends connected with the side arms. A bracket-shaped member has downwardly-extending spaced legs depending from and connected to the cross arms. The legs are spaced inwardly from the side arms to provide gaps therebetween. Invented by Vernie A. Fox, Detroit, Mich. Assigned, by mesne assignments,, to Young Brothers Co., Detroit, Mich. Original application February 20, 1942, divided and this application February 26, 1945. 7 claims.

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Printing Presses and Equipment

2,573,852. JOGGER ATTACHMENT is for printing presses having a delivery table and reciprocating delivery mechanism for depositing printed sheets onto a table. The jogger comprises pivoted stop means normally positioned at a side of the table to engage the leading edge of a sheet delivered thereon to provide a vertical stacking of the sheets, a lever formed for securing at one end to the pivoted stop means and fashioned to locate its opposite end in the path of movement of a part of reciprocating mehanism for engagement and displacement thereby for oscillating the stop means to and from the side table in timed relation to the reciprocation of the delivery mechanism. Invented by Edward D. Lawrence, Oakland, Calif. Unassigned. Application August 7, 1948. 5 claims.

2,574,085. EXTRACTION DRIER for drying ink on a freshly printed web uses a chamber having open ends. The web is passed through this chamber and is substantially unsupported during its passage through chamber. There is a metallic screen in the top of chamber, above the web, and a similar screen below the web. Each screen is wider than the web and extends across the chamber from side to side. Electrical heating elements contact the edges of the screens for heating same by conduction. Invented by John T. Bian, Chicago, Ill. Assigned to Partnership composed of John T. Bian and others. Application November 1, 1947. 4 claims.

2,574,844. APPARATUS FOR DRYING SHEET MATERIAL, such as freshly printed paper webs, includes a casing having a bottom wall formed with an opening in overlying spaced relation to a paper surface to be dried. A layer of dehydrated air is continuously delivered to one side of casing and into contact with wet paper through casing opening. The top wall of casing is formed as a semi-Venturi tube above bottom wall opening to simultaneously increase the velocity and reduce the thickness of the flowing layer of air to the wet paper as it is moved across the opening. There is a cone-shaped outlet at other side of casing which recovers air from casing by suction after it has contacted the wet paper. Invented by William F. Roden, Carl Place, N. Y. Unassigned. Application April 16, 1949. 3 claims.

2,574,941. CONVEYOR BELT PRINTING MACHINE WITH MULTIPLE IMPRESSION. A printing machine for letter press printing comprises, in combination, a first printing mechanism for printing on the upper side and a second printing mechanism for printing on the back side of a web, an endless conveyor band arranged as carrier of the printing blocks and adapted to run

under tension over driving and guide rollers, at least two adjustment and paper transport means on each side of the conveyor bank, a guide roller and an endless belt arranged for running over the rollers, blank paper rolls arranged close to the endless belts of the first printing mechanism, and deflector rollers. Invented by Friedrich J. Trozmuller, Vienna, Austria. Assigned to Semperit Osterreichisch-Amerikanische Gummiwerke Aktiengenssellschaft, Vienna, Austria. Application July 12, 1949; in Austria, August 14, 1948. 6 claims.

2,575,172. A GRIPPER for releasably clamping a sheet of flexible material, such as paperboard to the surface of the cylinder of a cylinder press of the type equipped with an oscillating gripper shaft on the cylinder extending parallel to the cylinder axis, comprises a body member having a hole therethrough for mounting the body member on the gripper shaft. The body member has a prismatic straight guideway, a slot extending from the guideway into the body normal to the axis of the hole, a gripper arm, means for clamping the body member to the gripper shaft, and a bolt extending through the body member for drawing together the two portions of the body member separated by the slot to clamp the shank portion of arm in adjusted position. Invented by John J. Isella, North Haven, Conn. Assigned, by mesne assignments, to Heisler Machine & Tool Co., Clifton, N. Y. Application August 4,, 1949. 1 claim.

2,576,047. METHOD AND APPARATUS FOR PRINTING ELECTRICALLY. The method of printing consits of moving an electrically conductive support carrying an electrically charged image layer of electrically insulated material through a developing zone in which developer powder with a charge having a polarity opposite to that of the charge on the image layer is electrically deposited on the charged image layer to form a powder image, feeding a transfer material contiguous to the image layer carrying the powder image, spraying an electrostatic charge on the transfer material, stripping the material from the image layer and recharging the image layer. Invented by Roland M. Schaffert, Columbus, O. Assigned, by mesne assignments, to Battelle Development Corp., Columbus, O. Application October 21, 1948. 6 claims.

BOOKS

Static Electricity Report

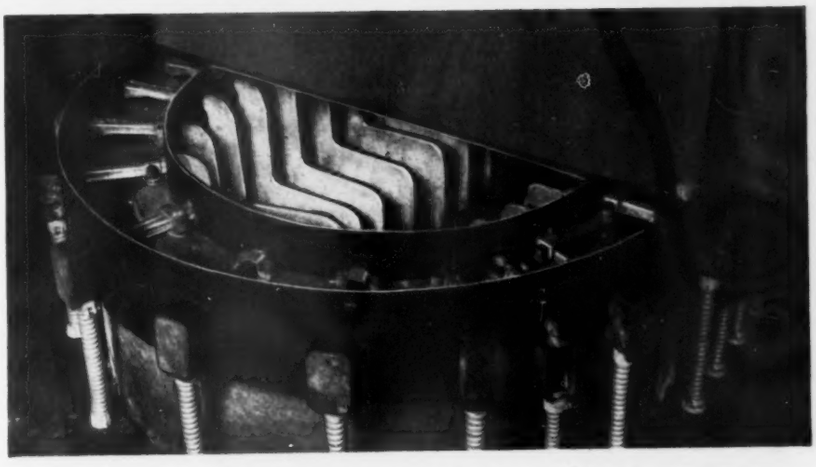
HOW to control and eliminate the problems of static electricity in the printing and paper handling industry is told simply and clearly in the latest publication of the Research and Engineering Council of the Graphic Arts Industry. Starting with a basic explanation of what static electricity is and why it causes so many heartbreaking problems to the printer and binder, the report presents the advantages, disadvantages and comparative costs of all the available techniques for controlling and eliminating this problem in the plant. From tinsel string to radio-active eliminators, every type of eliminator is discussed in clear, non-technical language so that regardless of the size of the plant or the extent of the problem, a printer, a binder, book manufacturer or any other member of the Graphic Arts industry can determine which technique will give optimum results in his plant.

Indicative of the report's simplicity and clarity of treatment of this technical subject is the description of how to make an inexpensive (less than a dollar) static detector. The reason for recommending the use of a static detector is that it is important to know whether static electricity is, in fact, causing paper handling problems or whether the problems are caused by something else, e.g., improper feeder and delivery adjustments on the press, etc.

Of assistance to the printer in utilizing the information contained in the report is the one-page summary outline of the various techniques for controlling and eliminating static electricity. This summary was prepared for the purpose of making it possible for the printer to put into effect immediately the several important recommendations of the Council concerning this problem.

This report is the result of two years study and research by an impressive list of outstanding authorities in the field of static electricity who contributed their time and effort to the Research and Engineering Council of the Graphic Arts In-

New BALTIMORE SUN Plant Uses Modern Metal Melting



The latest technical developments for fast, efficient newspaper production at the new Baltimore Sun plant include G-E Calrod* heaters which they use exclusively for all stereotype melting. And with a daily circulation of over 362,000 the paper *must* have reliable plate production.

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Small or large papers can use electric heat efficiently and economically. Melting pots can be converted to electric heat over a week-end.

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GENERAL ELECTRIC

720-61

dustry. The preparation of the publication was a cooperative project of Battelle Memorial Institute and the Council. Special acknowledgement is made to Battelle for its contribution of staff time and to The Haywood Publishing Co. of Lafayette, Ind. for printing the report at no charge to the Council. Copies of the report have already been mailed to subscribers to the Council program. This report brings to 24 the number of publications issued by the Research and Engineering Council, all available to any member of the printing industry.

Copies of the Static Electricity Report may be obtained for $5 by writing to the Research and Engineering Council of the Graphic Arts Industry, Inc., 719 Fifteenth St., N. W., Washington 5, D. C.

New Ink Plant—C. B. Hawley, President of the Hilton-Hawley Co., announces the company is located in its newly constructed plant (shown above) on an 8 A. tract at Gailbraith Rd. and Lockland Expressway, Cincinnati, O. The new facilities will accommodate chemical, control and color-matching laboratories. Included are the latest type ink mixing and milling machinery, according to the announcement. Water-cooled, three-roller mills are equipped with overhead hoists to facilitate handling operations. The concrete block, brick faced structure is comprised of more than 22,000 sq. ft.

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New Techniques in Practical Art for Reproduction

A 140 page text devoted to a complete explanation of the Bourges Color Separation Process has been prepared for use by all those connected with preparing all types of art copy for any photomechanical reproduction process. It is of special value to layout men, artists, art directors, advertising agencies,

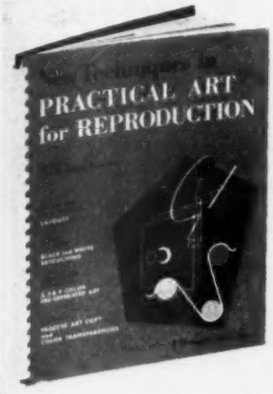
J. Bourges Mayfield, author of *New Techniques in Practical Art for Reproduction*.

clients and Graphic Arts students in familiarizing themselves with the different techniques employed in this method of reproducing prepared art. Authored by J. Bourges Mayfield and titled *New Techniques in Practical Art for Reproduction*, the book is composed of completely defined descriptions and illustrations on how art copy may be prepared by the Bourges Process. Mrs. Mayfield has explained the procedure to be followed by progressive illustrations which enables the reader to visually grasp the different steps involved in place of lengthy type descriptions. The final result of what can be obtained is also shown.

Eleven chapters in the text deal with the following subjects: Bourges materials and how to use them, the Bourges Process for layouts and presentations, Solotone (shading sheets) overlays for black-and-white, Transopaque overlays for line separation, Colotone (shading sheets) overlays for line separation, and Colotone overlays for halftone separation in color. Also Colotone overlays for process art copy, Colotone overlays for color transparencies, the Bourges Process for newsprint reproduction, the Bourges Process

for graphic presentations, and reproduction data for the Bourges Process.

As listed in the introductory of the book, the Bourges Process is used in various ways for presentations, black-and-white copy, line separations, halftone separations, and with regular process copy. A full page contains illustrations and brief explanations of the materials used in the process.



Cover of the recently published book devoted to an explanation and uses of the Bourges Color Separation Process. The cover is printed in four colors with a white plastic comb binding.

As explained in the text, the Bourges Process is built around a palette of actual printing ink colors which the artist uses to prepare art for reproduction. The palette consists of ten transparent colors, called Colotone, plus black and white, called Solotone. The colors include process red, poster red, orange, poster yellow, process yellow, green, process blue, poster blue, purple and brown. The colors can be used separately or overlapped to achieve limitless other colors. All of the colors are standard ink pigments and can be duplicated by most ink companies.

A typical chapter in the book shows the application of white Solotone shading sheets in obtaining phantom effects on a black-and-white photograph. Illustrations accompany the explanation of the procedure to follow in preparing the copy for the effect desired. The method of reproduction is then explained. The photograph is shown as it appeared before applying the Solotone sheet, as well as the finished results of using the process.

Color separation has a prominent place in the text with several chapters devoted to pre-separated art. This is a type of art with the separations prepared by the artist in actual ink colors. The types of pre-separated copy covered range from simple flat color to intricately blended tones in two, three and four colors.

Among the interesting uses of the Bourges Process discussed in the text is its application to graphic presentations, such as charts and graphs, slide films, etc. Different forms of Colotone are applied to obtain different results in the finished presentations. According to the author, Colotone sheets will not deteriorate and are not affected by heat which makes for permanence in the finished presentation.

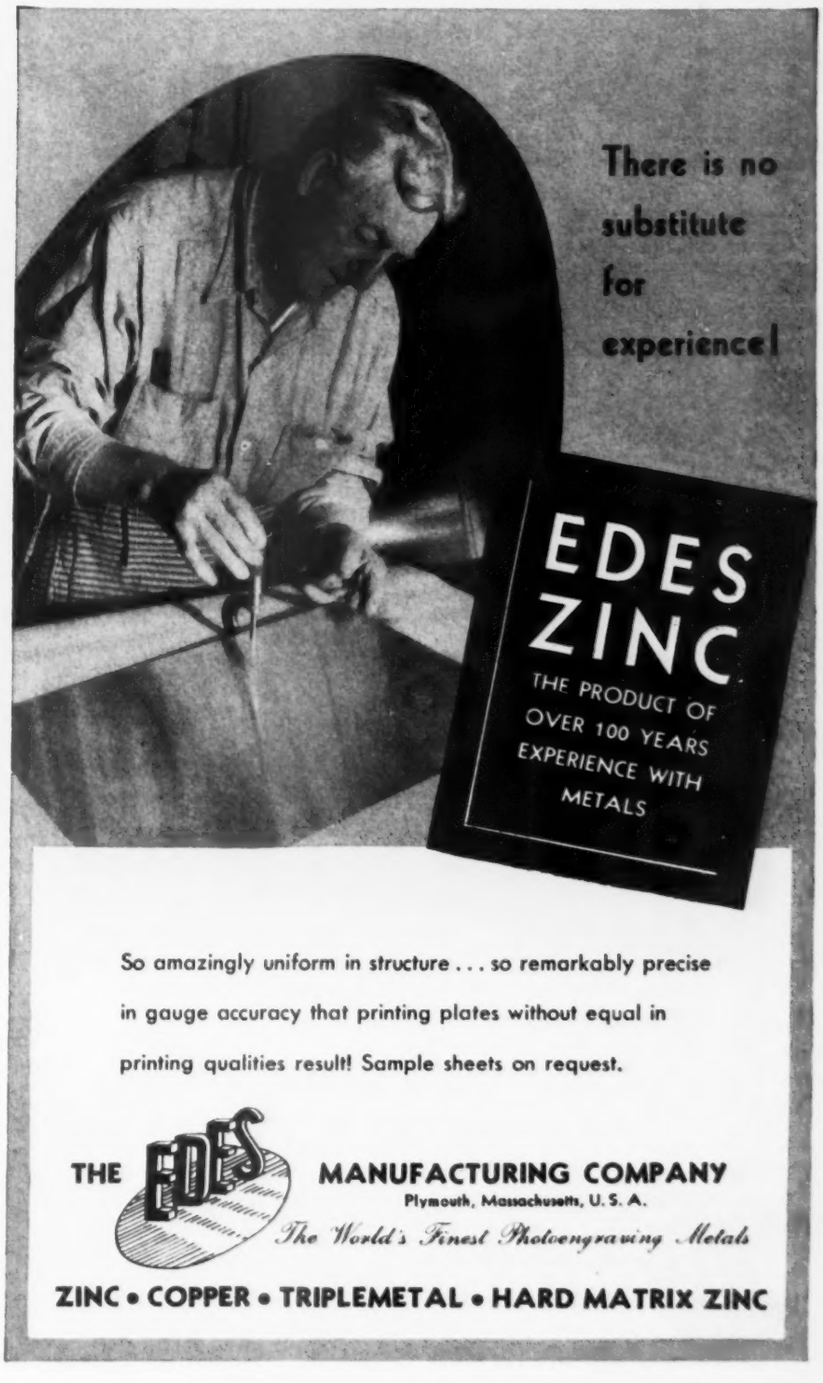
Various newspapers use the process to make color presentations, for black-and-white copy, for pre-separated line copy, for pre-separated process halftone copy, and for regular four-color process copy. In applying the process to black-and-white copy, phantom effects can be obtained, tone values can be deepened and backgrounds can be added.

Author Mayfield has perhaps made the greatest stride in presenting the Bourges Process to the Graphic Arts industry in an informative, uniform manner. The text and illustrations are handled so that the methods of application can be understood without further research by the reader. Also plainly outlined are the advantages to both client and user of the process. To state it simply, it's an a-b-c explanation of the uses of the Bourges Process.

New Techniques in Practical Art for Reproduction—by J. Bourges Mayfield. Book consists of 140 pages; size, 9½ in. by 12¾ in.; four color hard cover with white plastic comb binding. May be ordered from Bourges, Inc., 106 Fifth Ave., New York 11, N. Y. Price, $7.50 per copy.

LTF Manual on pH

THE Lithographic Technical Foundation maintains that an understanding of pH and the devices used to measure it can be of considerable help in detecting errors and avoiding many troubles commonly found in offset plants. With this in mind, the Foundation has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issued Bulletin No. 803 entitled *pH—What It Is, How To Measure It, Where To Control It.*

Information contained in the 48 pages of the manual includes, in addition to what the title lists, the various acids and buffers, the best pH values for different metals, the importance of pH in tap water, in paper and paper coatings, in desensitizing etches and gums, and in Cronak solutions.

A chart printed in red, blue and black provides a graphic representation of the pH scale showing the pH values of various acids and bases in 0.1 normal solution. The section of the manual devoted to measuring pH includes illustrations and descriptions of measurements with colored indicators and electric meters.

It is pointed out in the manual that pH control is valuable in testing paper or the coating on a paper before printing as one check on probable ink drying time. A graph is used to show the general relation between coating pH and drying time of offset black ink on coated papers at different humidities.

An interesting feature of the manual is a summary chart showing a comparison of cost and results obtained with different methods of pH measurement. Another chart contains a summary on uses of pH control.

Copies of Bulletin No. 803 are available at $2 per copy, less discount to LTF members. May be ordered from Lithographic Technical Foundation, 131 E. 39th St., New York 16, N. Y.

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Conference Dates

(With Organization Names and Principal Officers)

American Photoengravers Association – 1952 Convention to be held in Chicago, hotel and dates to be announced later. W. K. James, President; Frank J. Schreiber, Executive Secretary, 166 W. Van Buren St., Chicago 4, Ill.

ANPA Mechanical Conference—1952 Conference, Fairmont Hotel, San Francisco, June 9, 10 and 11. Chairman of the Committee, L. J. Griner, Production Manager, Detroit *News;* Manager ANPA Mechanical Dept., Vernon R. Spitaleri, 370 Lexington Ave., New York 17, N. Y.

Fifth District Craftsmen's Conference—1952 Conference, Hotel Statler, Detroit, tentative dates June 20 and 21. President, Robert Knox, Michigan Typesetting Co., 457 W. Fort St., Detroit, Mich.; Secretary-Treasurer, Robert Wolf, Richardson-Taylor-Globe Co., 4501 Mitchell Ave., Cincinnati 32, O.

Gravure Technical Association—1952 Conference, Biltmore Hotel, New York, N. Y., January 1952, exact dates to be announced later. President, Len S. Pinover, Intaglio Service Corp., 305 East 46th St., New York, N. Y.; Secretary-Treasurer, J. E. Hazel, Room 4800, 30 Rockefeller Plaza, New York 20, N. Y.

Great Lakes Newspaper Mechanical Conference—1952 Conference, Hotel Statler, Detroit, January 20, 21 and 22. President, Joseph E. McMullen, Asst. Production Manager, Milwaukee (Wis.) *Journal;* Secretary, Don Clark, Stereotype Supt., Grand Rapids (Mich.) *Press;* Chairman, Mfrs. and Suppliers Committee, Edgar Flint, Howard Flint Ink Co., Clark Ave. and M.C.R.R., Detroit 9, Mich.

Illinois Newspaper Mechanical Conference — 1952 Conference to be held in Alton, Ill., dates to be announced later. President, James B. Mawdsley, Composing Room Supt., Alton (Ill.) *Evening Telegraph;* Secretary-Treasurer, Wilbur L. Augspurger, Peoria (Ill.) Newspapers, Inc.

Intl. Assoc. Electrotypers & Stereotypers—1952 Convention, Cosmopolitan Hotel, Denver, Colo., October 13, 14, 15 and 16. President, C. C. Barnes, Ft. Wayne Engraving Co., 118-120 W. Superior St., Ft. Wayne 1, Ind.; A. P. Schloegel, Executive Secretary, 701 Leader Bldg., Cleveland 14, O.

International Association of Printing House Craftsmen—1952 Convention, Jefferson Hotel, St. Louis, August 10, 11, 12 and 13. President, J. Homer Winkler, Battelle Memorial Institute, 505 King Ave., Columbus 1, O.; Executive Secretary, Pearl E. Oldt, 18 E. Fourth St., Cincinnati 2, Ohio.

International Graphic Arts Education Association—President, George J. Bilsey, East High School, Cleveland, O.; Educational Director, Fred J. Hartman, 719 Fifteenth St., N. W., Washington 5, D. C.

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The best in cylinder grinding and polishing machines; special heads (patent pending) — with precision controlled stone pressure and automatic feed.

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Now... more than ever it pays to go Blatchford!

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With Blatchford you get a clean, solid cast. That's because Blatchford Type Metal melts smoothly, flows freely, molds sharply.

With Blatchford you get type, slugs, and plates that are true to the mold. Blatchford has the fluidity to "get" all detail in the mat or matrix.

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What does this add up to... and mean to you?

It adds up to fewer imperfect casts, fewer machine and press stoppages. It means your staff and costly equipment can operate to capacity.

It means, with Blatchford on the job, you get maximum production at lowest cost. Buy Blatchford and get top metal performance.

➡ **Free chart for re-melt rooms** tells, step by step, how to keep metal "healthy" and *cut dross loss* with Blatchford Type Metal Flux. Just write, Box PE-1, the office nearest you for "Re-melt Chart."

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Blatchford
is the NATIONAL name for dependable metal...

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International Typographic Composition Association—1952 Convention, Hotel Statler, St. Louis, Mo., October 9, 10 and 11. President, John R. Connell, Connell Typesetting Co., 302 E. Eighth St., Kansas City 6, Mo.; Frank M. Sherman, Executive Director, 1015 Chestnut St., Philadelphia 7, Pa.

ITCA Eastern District Conference — 1952 Conference, Hotel New Yorker, New York, April 25 and 26.

ITCA Mid-Winter Convention — 1952 Meeting, Hotel Shamrock, Houston, Tex., February 15 and 16.

Iowa Daily Newspaper Mechanical Conference — 1952 Conference, Blackhawk Hotel, Davenport, Ia., May 17, 18 and 19. President, Ross DeVine, Superintendent, Davenport (Ia.) *Times;* Secretary-Treasurer, Paul F. Kamler, Mechanical Supt., Clinton (Ia.) *Herald.*

Wild & Stevens' New Plant—Shown above is an artist's drawing of the new building of Wild & Stevens, Inc., located at 45 Industrial Pl., Newton Upper Falls, Mass. According to Robert B. Arbuckle, President, the structure will house the company's roller making plant, printing equipment and supply business, research laboratory and executive offices.

Kansas Newspaper Mechanical Conference — 1952 Conference, Broadview Hotel, Wichita, Kan., September 13 and 14. President, W. A. Blackburn, Herington (Kan.) *Advertiser-Times;* Secretary-Treasurer, Larry Miller, Kansas Press Assoc., 701 Jackson St., Topeka, Kan.

Lithographers National Association — Executive Director, W. Floyd Maxwell, 420 Lexington Ave., New York 17, N. Y.

Mid-Atlantic Mechanical Conference — 1952 Conference, Bellevue-Stratford Hotel, Philadelphia, March 20, 21 and 22. Jointly sponsored by the New Jersey Press Assoc. and the Pennsylvania Newspaper Publishers Assoc. Conference Director, Theodore A. Serrill, PNPA General Mgr., 209 Telegraph Bldg., Harrisburg, Pa.

Missouri Newspaper Mechanical Conference—1952 meeting to be held in Kansas City, Mo., hotel and dates to be announced later. President, Mike Creasy, Composing Room Supt., Columbia (Mo.) *Tribune;* Secretary-Treasurer, O. K. Hammitt, Mechanical Supt., Moberly (Mo.) *Monitor-Index.*

National Association of Litho Clubs — 1952 Convention will be held in Philadelphia, hotel and dates to be announced later. President, Anthony Capello, 265 Rocklyn Rd., Upper Darby, Pa.; Secretary, Joseph H. Winterburg, Phillips & Jacobs Co., 620 Race St., Philadelphia, Pa.

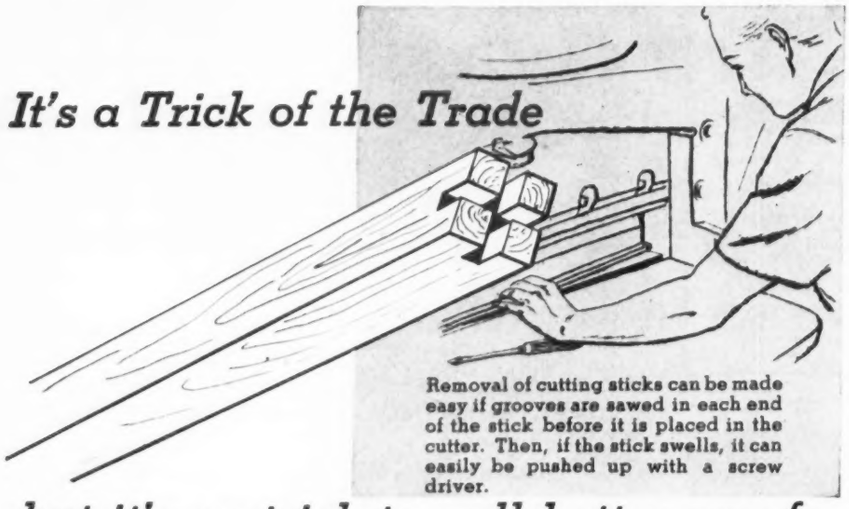
National Association of Photo-Lithographers—Executive Vice President, Walter E. Soderstrom, 317 West 45th St., New York 19, N. Y.

National Printing Equipment Association, Inc.—Place and time of 1952 annual meeting to be announced later. President, Fred S. Tipson, T. W. & C. B. Sheridan Co., 129 Lafayette St., New York 13, N. Y.; James E. Bennet, Secretary, 140 Nassau St., New York 7, N. Y.

New England Mechanical Conference — President, Howard J. Mehigan, Stereotype Supt. Bridgeport (Conn.) *Herald;* Secretary-Treasurer, Walter C. Crighton, Comp. Room Supt., New London (Conn.) *Day.*

Northwest Mechanical Conference — 1952 Conference, Hotel Duluth, Duluth, Minn., September 20, 21 and 22. President, John Breen, Mechanical Supt., Duluth (Minn.) *Herald* and *News-Tribune;* Secretary-Treasurer, Ralph Carson, Dunwoody Industrial Institute, Minneapolis, Minn.

It's a Trick of the Trade



Removal of cutting sticks can be made easy if grooves are sawed in each end of the stick before it is placed in the cutter. Then, if the stick swells, it can easily be pushed up with a screw driver.

but it's no trick to pull better proofs

with a Challenge Proof Press

In most every magician's repertoire you'll hear this expression: "Now you see it... Now you don't!" The opposite is true with Challenge Proof Presses. Broken letters, wrong fonts and damaged cuts are brought clearly in view on Challenge proofs.

In all, there are six models to choose from:—three with cylinder grippers, so that sheets are fed to the grippers and a micrometer side guide. All feature "sleight-of-hand" action and cylinder press operation with reciprocating bed rolling on anti-friction bearings to insure easier proofing ...and accurate proofreading.

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DROSS DRUM SERVICE

can keep your valuable type metal up to par

• In these days of tight metal supply, Imperial Dross Drum Service can be more profitable than ever to you.

Originated by Imperial for your convenience, Imperial Dross Drum Service provides an easy, orderly way for you to accumulate and ship your dross to us.

Imperial Drums are loaned to you without charge. Two sizes—holding 500 and 750 pounds respectively—are provided. Smaller Dross Cans holding 250 pounds are also available.

To take advantage of Imperial Dross Drum Service, just accumulate your dross in one of these containers. When the container is full, ship it to us. In return, we'll send to you in pound-for-pound exchange at a low cost differential the PLUS METAL which will maintain your working metal supply at its normal quality.

Put the maintenance of your type metal on this Imperial Plus Plan as thousands of others are doing, and avoid production losses and faulty printing due to sub-standard type metal.

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THE NEW CHROMALOX HEATING UNIT

HALF THE COST... MUCH MORE EFFICIENT!

This newly designed heating unit will bring you these 7 advantages

1. Larger capacity for type metal.
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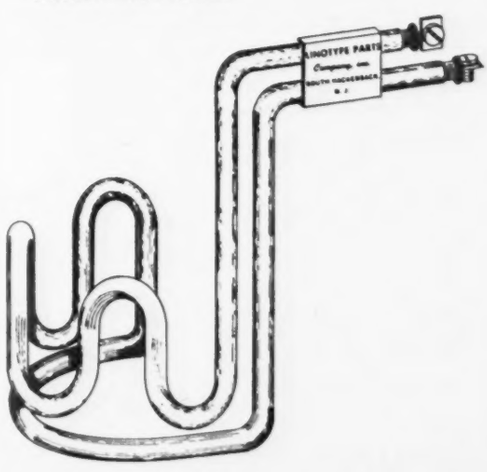
6. Safer construction—nickel-chromium spiral wire baked to hold the wire firmly in center, meaning less chance of 'shorts'.
7. LOWER IN COST.

The Chromalox Heating Unit is available in either 110 or 220 volts—write today for further information.



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Pacific Mechanical Conference—1952 Conference will be held in conjunction with ANPA Mechanical Conference at Fairmont Hotel, San Francisco, June 9, 10 and 11. President, Clyde Bowen, *Wall Street Journal*, San Francisco; Secretary for the North, Edw. N. Conley, color press foreman, San Francisco *Chronicle;* Secretary for the South, Fred J. Moyer, Los Angeles *Daily News.*

Printing Industry of America—1952 Convention, Chase and Park Plaza Hotels, St. Louis, October 12-18. President, Arthur A. Wetzel, President, Wetzel Brothers, 444 N. Broadway, Milwaukee 2, Wis.; James R. Brackett, General Manager, 719 Fifteenth St., N. W., Washington, D. C.

Research and Engineering Council of the *Graphic Arts Industry, Inc.*— President, Frank F. Pfeiffer, Reynolds & Reynolds Co., 800 Germantown Ave., Dayton, O.; Official Headquarters, Bernard Taymans, 719 Fifteenth St., N. W., Washington 5, D. C.

Screen Process Printing Association — 1952 Convention to be held in Chicago, dates and hotel to be announced later. President, John W. Key, Admiral Screen Print Corp., 627 W. Lake St., Chicago 6, Ill.

SNPA (Eastern Div.) Mechanical Conference—Chairman, L. H. Pickens, Mechanical Supt., Greenville (S.C.) *News-Piedmont;* Secretary, Tom Tanner, care SNPA, P. O. Box 1569, Chattanooga 1, Tenn.

SNPA (Western Div.) Mechanical Conference — 1952 Conference, Rice Hotel, Houston, Tex., February 24, 25, 26, 1952. Chairman, Ralph Moffett, Mechanical Supt., Dallas (Tex.) *Times-Herald;* Chairman of Supply Men's Committee, F. L. A. Gorspach, Intertype Corporation.

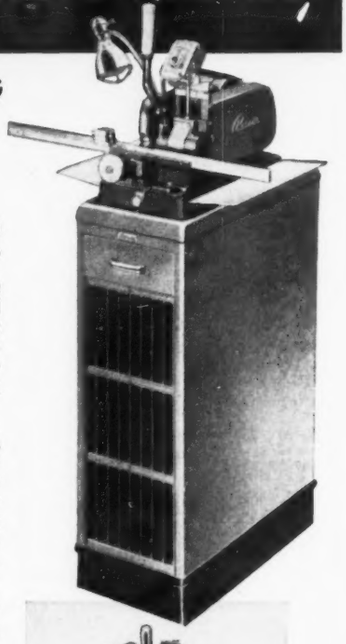
Technical Assoc. of the Graphic Arts—1952 Meeting, Hotel Carter, Cleveland, May 5, 6 and 7. President, Paul W. Dorst, 3373 Morrison Ave., Cincinnati 20, Ohio; Secretary-Treasurer, Paul J. Hartsuch, Intl. Printing Ink Div. of Interchemical Corp., 161 W. Harrison St., Chicago 5.

DO THE WORK OF HOURS *in Minutes!*

SLASH YOUR PRINTING COSTS WITH THE

Rouse

POWER MITERER



If you need miters in either small or large quantities, no other machine nor method can turn out anywhere near as many perfect joining miters so quickly from strip material. That's how the Rouse Power Miterer can slash your printing costs by doing work in minutes that now takes you hours.

A Rouse Power Miterer won't cost you one cent! Printers the world over say that money paid for a Rouse Power Miterer quickly comes back through tremendous savings in expensive time. After getting your money back, you'll start collecting daily dividends from permanently lower operating costs.

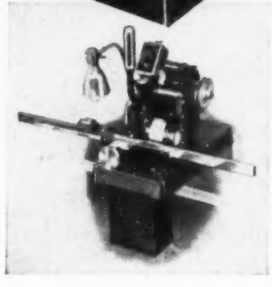
FROM THE SMALLEST JOB SHOP UP TO THE LARGEST PLANT, ONLY ROUSE MAKES A POWER MITERER FOR EVERY TYPE OF USE.

You may buy any Rouse Power Miterer as a bench model or with any other equipment you wish.

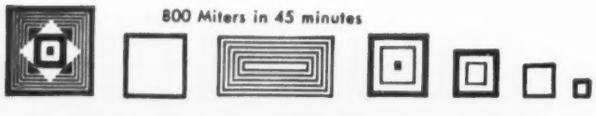
Virtually every printing plant in the world uses one or more Rouse products.

Write today for illustrated folder.

Call your dealer today or write for illustrated folder.



800 Miters in 45 minutes



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MITERING MACHINES
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BAND SAWS

NPA
Printing and Publishing Division

Comic Magazine Conservation Plan

Publishers of comic magazines, in cooperation with the National Production Authority, are seeking a voluntary agreement among themselves to reduce the number of returned copies and thus conserve newsprint, NPA has reported. Under the proposal, comic magazine publishers would reappraise their press runs with the object of reducing by at least 10 per cent the expected percentage of returns. The rate of returns reduction would be established in relation to the existing average rate of returns. Each publisher would furnish suitable records of print orders and returns from press runs quarterly to NPA, beginning with the second quarter of 1951. This information would be available only to NPA. All publishers in the comic magazine industry will be invited to enter into voluntary adherence to the plan.

Newsprint Expansion

Expansion of newsprint production capacity by 494 thousand T. annually was approved recently by the Defense Production Administration's Office of Program and Requirements. The decision, however, does not carry with it any assurances of priorities in construction, and expansion in the construction of new facilities for production of newsprint should wait until the more urgent defense projects are out of the way, DPA said. Approval for the expansion was given to allow the granting of certificates of necessity for rapid tax amortization of facilities for expanding newsprint production.

Used Printing Machinery

Ceiling Price Reg. 105, issued December 17, 1951, by the Office of Price Stabilization, is a new tailored ceiling price order designed to cover sales of used printing trades machinery and related equipment. In general, ceiling prices are determined for rebuilt and guaranteed equipment and for equipment that does not qualify as being rebuilt and guaranteed.

The ceiling price for rebuilt and guaranteed equipment is established at 85 per cent of its applicable base price. For

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THE PLANE-O-PLATE
THE HYDRO-CASTER
MONOMELT POWER SHEARS
MONOMELT MOLDING PRESSES
PLASTIC PLATE CURVER
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PRICE HAPPY SHOPPERS HAVE THEIR INNING

They kept their fingers crossed during the holiday rush looking for better opportunities in mid-winter clearance sales . . . Now they scan the papers for bargains, checking attractive figures on desired items . . . Production must be clear and clean when the lure of advertising is found in a volume of detailed price data. Certified clarity is a big help in this problem.

For dependable stereotyping, rely on Certified Mats

Certified DRY MATS

CERTIFIED DRY MAT CORPORATION, 9 Rockefeller Plaza, Dept. M, New York 20, N. Y.

equipment which is not rebuilt and guaranteed the ceiling price is established at 55 per cent of its applicable base price. However, in either case a ceiling price may be determined under a depreciation method prescribed as 9 per cent for printing and publishing machinery under Reg. 105. This rate is applied to the base price. In the case of equipment which is not rebuilt and guaranteed, the depreciation method of pricing must not result in a ceiling price of more than 80 per cent of the base price.

Sellers determine used equipment ceilings by applying the specified percentages to the manufacturer's current published list price (base price) for the same or similar new equipment. In the absence of a manufacturer's current list price, an alternative list or cost price may be used for applying the percentages specified.

Education Council Plans Publications—Steps toward the development of educational activities in the Graphic Arts industry were taken at a recent meeting of the Executive Committee of the Education Council of the Graphic Arts Industry, Inc. The Council agreed upon a program which will lead to the publication of two orientation manuals and a safety manual. The manuals are planned as tools for all Graphic Arts groups in interesting new personnel, indoctrinating personnel and in carrying on related training programs. National Graphic Arts Expositions, Inc., has established an $18 thousand revolving Publications Fund for the Council. The group represents a coordination among Graphic Arts organizations to avoid duplication of industry activity in the educational area.

Members of the Executive Committee pictured above, from left to right, are as follows: Herbert Livesey, Secy., Natl. Assoc. of Printing Ink Makers' Council organization member; Council Secy., Byron G. Culver, Supervisor, Dept. of Publishing and Printing, Rochester (N. Y.) Institute of Technology, and representative, Intl. Graphic Arts Ed. Assoc.; Wade E. Griswold, Exec. Dir., LTF, Council organization member; Council Treas., E. G. Williams, President, ATF, Inc., and representative, NPEA, Council organization member; Asst. to Council Pres., Bernard J. Taymans, Asst. Gen. Mgr., PIA; Council Pres., James J. Rudisill, Ed. Committee Chairman, PIA, and President, James J. Rudisill Co., Lancaster, Pa.; Council 1st V. Pres., Elmer Voigt, an executive of Western Printing & Lithographing Co., Racine, Wis., which through its contribution of $5 thousand is the only participating company member of the Council; Council 2nd V. Pres., Harry L. Gage; James R. Brackett, Gen. Mgr., PIA, Council organization member; Ralph Cole, Pres., Consolidated Lithographing Corp., Brooklyn, N. Y., and Ed. Committee Chairman, LTF; Council Teacher Training Rep., W. O. Morgan, Chicago Lithographic Institute.

PRE-SHRINK and FLAT SCORCHER

FEATURING:

Pre-Shrink attachment
Hinged instrument panel
Thermostatic Heat Control
one-piece heavy perforated steel cover.

Bearer arms hold weight of cover off mat and forms an oven for pre-shrink.

Can also be used as scorcher with bearer arms out of position.

OPTIONAL
Scorching Timer
Pre-Shrink Timer
Open front—two shelves
Closed front (illustrated)

Floor space 31" x 28"
Height—cover closed 33"
Height—cover open 56"
Shipping weight 250 lbs.
Rating—11 amps. on 220 v.

Showing bearer arms in position under cover for pre-shrink

	AC	DC
Model "FC" without timer	$250.00	$275.00
Model "FS" with one timer	275.00	300.00
Model "FSP" with two timers	300.00	325.00

Prices f.o.b. Lynnfield, Mass.

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Opens Ink Plant

Formal ceremonies marked the recent opening of Bensing Bros. & Deeney's new half-million dollar ink making plant at 3301 Hunting Park Ave., Philadelphia. Visitors on hand for the occasion toured the plant to witness the production of aniline, letterpress and offset inks. Climaxing the ceremony was the presentation of a Certificate of Commendation which cited the firm for its faith in the future of Philadelphia industry. Clewell Sykes, Chairman of the Board of the Chamber of Commerce of Greater Philadelphia, presented the commendation to the company's three top officials, James J. Deeney, Roy and Harold Bensing.

International Conference of Printing Research Institutes—The Conference was held at the laboratories of The Printing, Packaging & Allied Trades Research Assoc., Patra House, Randalls Road, Leatherhead, Surrey, England, on November 26-28, 1951.

Front row (left to right): M. Marcel Rives, (Director General, Centre Technique des Industries Graphiques) France; M. Victor Letouzey (Member of Board of Directors, Centre Technique des Industries Graphiques) France; Dr. G. L. Riddell (Director of Research, PATRA); E. E. Anderson and C. W. Christensen, both of Den Grafiske Hojskole, Denmark.

Center row (left to right): R. G. W. Croney (PATRA); M. Alain Bargilliat (Technical Director, Centre Technique des Industries Graphiques) France; R. R. Coupe and Dr. G. Macdougall, both of PATRA: Prof. J. Albrecht (Institut der Deutschen Gesellschaft fur Forschung im Graphischen Gewerbe), Western Germany; Gosta Carlsson (Grafiska Forskningslaboratoriet), Sweden.

Back row (left to right): Dr. W. H. Banks (PATRA); J. F. Monroy (Instituut voor Grafische Techniek TNO) Holland; M. V. Vahnery (Palais de Fontainebleau) France; Lennart Pihl (Grafiske Forskningslaboratoriet), Sweden; A. H. Smith (PATRA); Sv. Ahrenkilde (Den Grafiske Hojskole) Denmark; K. N. Hoare and James Lawrie, both of PATRA.

ABC of Offset

(Continued from Page 39)

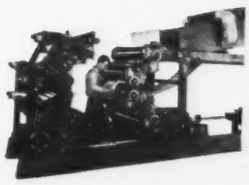
negative *is a transparency*. Which means that the negative must be viewed by transmitted light, and corrective operations must be performed with the same idea in mind, that transmitted light must be available in proper color or temperature and degrees of intensity.

Another point to be remembered is this: All post-camera operations on negatives or positives are primarily a continuation of the photographic process. The color correctionist continues the processing from where the cameraman leaves off.

Consequently, there must be a duplication of certain darkroom and processing equipment and chemicals so that the following operations can be effectively accomplished. If the photographic department is equipped with the best of equipment and controls, it stands to reason that post-camera operative equipment, controls and working facilities must be of a similar high standard, with due consideration of all plant variables, lighting and light and temperature controls.

Since these facilities are essential to good color correction, let's begin our discussion with consideration of the equipment, lights, lighting, water supply, drainage and all other facilities, with special attention being given to the eyes,

A VERSATILE 4 TO 8-COLOR PRESS DOES A VARIETY OF JOBS



• • • PROFITABLY!

A magazine publisher uses two, two-color and one single-color flat bed presses to produce 6,120 five color covers an hour. The same job is now printed ***six colors*** on one Hess & Barker Rotary Letterpress at the rate of 40,000 covers an hour. . . . A bag printer claims a million 4 color coffee bags 6 up in 24 hours. . . . A drinking cup and food container manufacturer prints from a roll and delivers in a rewound roll at the rate of 500 feet per minute or sheets at the rate of 10,000 per hour. . . . A local printer runs millions of impressions on a ***one-color job*** on his 4-color Hess & Barker press ***very profitably.***

For versatility Hess & Barker's 4 to 8-color rotary letterpress has everything.

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Beveridge Says,

"SHRINKAGE ALONE ISN'T THE ANSWER"

Of course, you can get shrinkage from many mats on the market but just shrinkage alone won't meet the problems on newspapers that demand an inch or even an inch and an eighth shrinkage. YOU MUST HAVE ACCURACY and YOU MUST HAVE UNIFORMITY. That's where BEVERIDGE HIGH SHRINKAGE MATS lead the field. You get shrinkage and you also get a high degree of accuracy and uniformity that solve the shrinkage problem. Let us give you the details.

New Products Division

The Beveridge Paper Company

Indianapolis 4, Indiana

Beveridge Dry Mats

SMALL BUT **POTENT**

for numbering coupons, stamps, tickets, etc.

Available in 5, 6 and 7 Wheel Sizes, Roman and Gothic figures.

Don't let this Midget Model fool you just because it's only 50 points wide.

Except for its small size, this "tiny tim" Wetter numbers the same legible numerals as any other dependable Wetter, quickly and accurately . . . only it prints in tight places.

If you have a numbering problem, small or large, there's a Wetter machine to meet your particular numbering needs. Write for the folder, "Wetter Numbering Machines."

Number Better With a Wetter

8273

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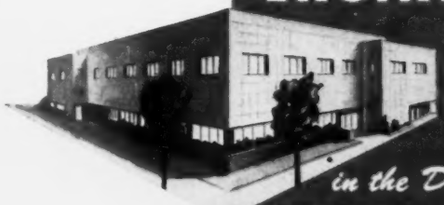

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health and physical comfort of the correctionist.

With an understanding of the facts outlined above, it is evident that post-camera operations must be performed in a separate department, if possible, adjacent to the Camera department, but not a part of that department. In planning for the post-camera operation process department, proximity to the platemaking department should also be taken into account.

Planning Process Department

Because of the persisting idea that tonal correction is an unnecessary evil, most plant operators disregard the importance of such a department and strive to allocate a dark spot location in some out-of-the-way portion of the plant. This is a serious and costly mistake and should be avoided.

Location

In Series One, the importance of Light and Good Lighting was frequently stressed and pointed out. Here too, in the Process department particular attention should be paid to the consideration of Light and Lighting, because Light of the right kinds is a prime requisite to good workmanship and quality corrective procedures.

Our first consideration, therefore, must be given to the eyes of the operator or correction artist. His color sense is activated by the rods and cones of the eyes, and the natural flexibility of their reactions to light of different intensities and brilliance. Focal adjustment of the eyes from the effects of light of one kind or brilliance, to light of another kind or intensity must be instantaneous.

Unlike the camera lens, the human eye is blinded and permanently injured or destroyed if it is openly exposed to the flame of an arc lamp or by looking directly into the midday sun.

It is instinctively natural to protect or shade the eyes from extremely bright light, and to look at things in subdued or less brilliant light, in order to avoid the inconvenience imposed by direct glare. The natural light best suited to the human eye is that light emanating from Northern skies. On clear days, Northern light is more consistent in day-long brilliance and intensity. This fact is important, then, in planning for the Process department.

Another fact to be considered is this: That illumination of color or any other copy must be uniform at all times if the eye is to perceive and react uniformly to the appearance of the copy throughout the day.

Granting that Northern daylight is the best illumination for consistent color definition, it is obvious that the Process department should be located in a part of the building having a Northern exposure, and having windows of such a size as to admit the free passage of the maximum daylight available for the illumination of the original copy and the printed impressions or sheets.

Where artificial light is required as a supplement to daylight illumination, such lighting should be diffused and of the same color temperature and brilliance as that of Northern daylight, readings of which should be taken at midday.

Space Allocation

As with all other departmental space provisions, the space allocations for the Process department should be based upon an estimated production potential, allowing for future expansion and equipment installations.

A floor plan division of allocated area should provide ample room for necessary equipment, storage cabinets, tables and wide aisle ways. At least 1000 cu. ft. of air space, should be allowed for each person employed in the department, or an area floor space 10 ft. by 10 ft. at each window opening. Reasons for adequate air space are: (1) To allow for ample ventilation, (2) To provide each workman freedom of motion and to reduce to a minimum any psychological feeling of confinement, and (3) To maintain, as much as possible, the uniform illumination of the working area by the uninhibited and free passage of natural daylight.

If it is impossible to allocate space with a Northern exposure, then an Eastern or Western Exposure is the best alternative. But, it must be remembered, that anything even approaching an ideal daylight will only be available for part of the working day. The balance of the working

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hours will be subjected to extreme variations in daylight illumination, with more likely than not periods of blinding glare from the sun.

Planning Is Essential

In recent months, it has been possible for this writer to visit many shops and printing establishments. He has seen at first hand the extent to which lack of planning has become a costly and disappointing experience. Especially is this true in the Southwest, where offset-lith is beginning to expand.

I have seen small 11 in. by 14 in. offset duplicating presses being operated in cellar basements, attics, shacks and, in bedrooms. 17 in. by 22 in. and 29 in. presses have been seen in operation in larger commercial printing plants, a few of which maintain their own platemaking facilities. Even in these plants, there is evidence of a lack of planning.

A Kluge press would be moved a few inches nearer to a Miller, the cutter would be moved almost next to the Linotype machine, with the hellbox relegated to the paper stockroom. And the proofreader is moved into the front office to share the desk of the stenographer and bookkeeper.

All of this crowding and jamming to make room for the installation of a whirler, vacuum frame, stripping table and an offset press. One plant had even moved its paper stock outside the building by storing it on a loading dock.

The plant owners justify their lack of planning by saying "The demand for offset is increasing, and the process is expanding, so, I'm getting in now, before I lose out altogether".

When they are chided for failing to obtain adequate advice from a consultant or technician, these operators give the excuses that the new equipment cost too much to allow for any other provisions; that time did not permit them to delay the installations, and, it said in a certain book that "Little additional space would be needed", and that fabulous financial returns, would begin to roll in immediately.

Then these same operators ask, "What can we do to increase our production? We are so crowded now that our production has fallen off almost 40 per cent, or What can we do about the situation now?"

To answer questions such as these, and under existing circumstances and conditions is extremely difficult. The reader can readily see where a failure to plan can become a genuine headache and pain in the neck.

Although this series will not provide any immediate solution to the questions and problems cited, it will tend to spare others from making similar mistakes.

Subsequent installments will treat of individual pieces of equipment, their uses and reasons for specific forms of construction, in relation to the particular process or operation under discussion.

(To be Continued)

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Frank A. Green, Vice President and Sales Mgr. of the Chicago Steel & Wire Co., died on December 21, 1951. Mr. Green was born January 25, 1898, in Newton, Mass. He joined Chicago Steel & Wire as eastern representative in 1922, later was promoted to eastern manager, and in 1945 was elected vice president and sales manager. He was instrumental in many developments and uses of stitching wire. Surviving are his wife, Eva, a daughter, Yvonne, and a son, Thomas.

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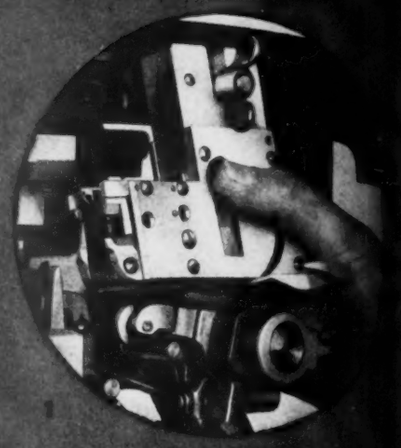
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